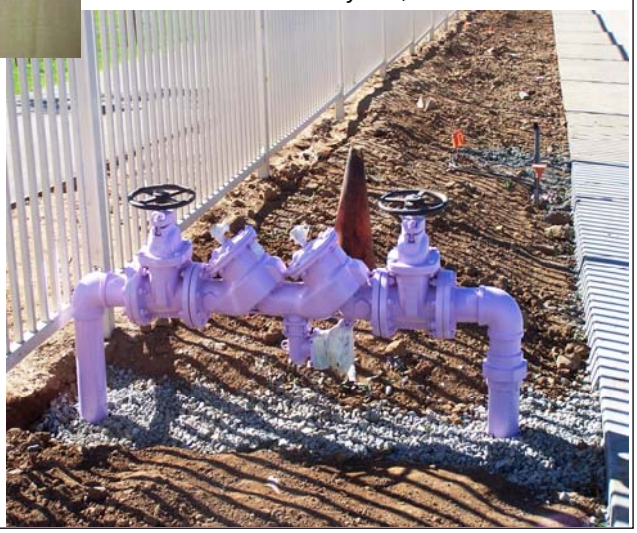
FINAL

2005 URBAN WATER MANAGEMENT PLAN UPDATE

BEAUMONT CHERRY VALLEY WATER DISTRICT

Beaumont, California

January 28, 2006



FINAL

2005 URBAN WATER MANAGEMENT PLAN UPDATE

BEAUMONT-CHERRY VALLEY WATER DISTRICT
560 N. MAGNOLIA AVENUE
BEAUMONT, CALIFORNIA 92220

January 28, 2006

Prepared by

PARSONS

100 W. WALNUT STREET, PASADENA, CA 91124

BEAUMONT CHERRY VALLEY WATER DISTRICT

2005 URBAN WATER MANAGEMENT PLAN UPDATE

BEAUMONT CHERRY VALLEY WATER DISTRICT

2005 URBAN WATER MANAGEMENT PLAN UPDATE

BEAUMONT CHERRY VALLEY WATER DISTRICT

2005 URBAN WATER MANAGEMENT PLAN UPDATE

TABLES

BEAUMONT CHERRY VALLEY WATER DISTRICT

2005 URBAN WATER MANAGEMENT PLAN UPDATE

FIGURES

BEAUMONT CHERRY VALLEY WATER DISTRICT

2005 URBAN WATER MANAGEMENT PLAN UPDATE

APPENDICES

APPENDIX A	CALIFORNIA URBAN WATER MANAGEMENT ACT (URBAN WATER MANAGEMENT PLANNING ACT OF 1983 - INCLUDING AMENDMENTS)
APPENDIX B	RESOLUTION TO ADOPT THE URBAN WATER MANAGEMENT PLAN
APPENDIX C	COOPERATIVE AGREEMENT BETWEEN THE CITY OF BEAUMONT AND THE BEAUMONT CHERRY VALLEY WATER DISTRICT
APPENDIX D	SAN GORGONIO PASS WATER AGENCY WATER FACILITIES MASTER PLAN COOPERATIVE AGREEMENT
APPENDIX E	IMPLEMENTATION MEMORANDUM OF UNDERSTANDING RELATING TO COOPERATIVE AGREEMENT BETWEEN THE CITY OF BEAUMONT AND THE BEAUMONT CHERRY VALLEY WATER DISTRICT & MEMORANDUM OF UNDERSTANDING BETWEEN THE CITY OF BEAUMONT, BEAUMONT CHERRY VALLEY WATER DISTRICT AND OAK VALLEY PARTNERS LP FOR RECYCLED WATER DELIVERY RESCINDING MARCH 1998 MOU
APPENDIX F	AGREEMENT FOR JOINT USE OF PERCOLATION PONDS
APPENDIX G	JOINT POWERS AGREEMENT CREATING THE SAN TIMOTEO WATERSHED MANAGEMENT AUTHORITY
APPENDIX H	JOINT FINANCING AGREEMENT BETWEEN CITY OF BEAUMONT COMMUNITY FACILITIES DISTRICT NO. 93-1 AND BEAUMONT CHERRY VALLEY WATER DISTRICT
APPENDIX I	AMENDED AND RESTATED JOINT FINANCING AGREEMENT BETWEEN CITY OF BEAUMONT COMMUNITY FACILITIES DISTRICT NO. 93-1 AND BEAUMONT CHERRY VALLEY WATER DISTRICT
APPENDIX J	SETTLE AGREEMENT BETWEEN YUCAIPA VALLEY WATER DISTRICT AND BEAUMONT CHERRY VALLEY WATER DISTRICT
APPENDIX K	CALCULATIONS FOR WATER DEMAND AND WASTEWATER GENERATION BY DEVELOPMENT
APPENDIX L	CITY OF BEAUMONT RECYCLED WATER USE REGULATIONS ORDINANCE NO. 772
APPENDIX M	CITY OF BEAUMONT RECYCLED WATER USE REGULATIONS ORDINANCE NO. 773
APPENDIX N	CITY OF BEAUMONT RECYCLED WATER USE REGULATIONS ORDINANCE NO. 775
APPENDIX O	SUMMARY OF PUBLIC HEARING AND COMMENTS RECEIVED
APPENDIX P	BEAUMONT BASIN ADJUDICATION
APPENDIX Q	BEST MANAGEMENT PRACTICES (WATER CONSERVATION) ECONOMIC EVALUATIONS
APPENDIX R	AGREEMENT BETWEEN CITY OF BANNING AND BEAUMONT CHERRY VALLEY WATER DISTRICT TO PROMOTE CONJUNCTIVE USE AND ADDRESS LONG-TERM RELIABILITY OF THE (BEAUMONT) BASIN AS A SOURCE OF POTABLE WATER INCLUDING THE USE OF WATER RECYCLING AND THE TREATMENT AND USE OF IMPORTED WATER

SECTION 1
BACKGROUND, PUBLIC INVOLVEMENT, AND BASIS FOR PLANNING

1.1 INTRODUCTION

The California Water Code requires all urban water suppliers within the state to prepare urban water management plans and update them every five years. These plans satisfy the requirements of the Urban Water Management Planning Act of 1983 including amendments that have been made to the Act. Sections 10610 through 10657 of the Water Code detail the information that must be included in these plans, as well as who must file them. Appendix A contains the text of the Act. This report constitutes the 2005 update to the Beaumont-Cherry Valley Water District's (District's) 2000 Urban Water Management Plan (UWMP).

According to the Act, "The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level." The Act requires that each urban water supplier, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, shall prepare, update and adopt its urban water management plan at least once every five years or before December 31, in years ending in five and zero. The Plan may be updated at any time when the Urban Water Supplier believes significant changes have occurred in population, land use, and/or water sources that may affect the contents in the Plan.

1.2 RELATIONSHIP BETWEEN UWMP AND SB 221 (KUEHL) AND SB 610 (COSTA)

In 2001 the California Senate passed SB 221, (sometimes called the "Keuhl Bill"), and SB 610, (generally referred to as the "Costa Bill). These became law on January 1, 2002 and have been chaptered into the California Codes. These measures were enacted to provide a link between water supply availability and land use decisions made by various governing bodies. SB 610, added to the Water code, requires that water supply assessments be provided to local governments for inclusion in the environmental documents needed for entitlement. SB 221, added to the Government Code, applies to those projects that involve a subdivision on land (subdivision map approval.)

If there is an UWMP on file (updated in accordance with State Law), and the demands for a particular project are included in the UWMP, the water supplier may use the UWMP to support the "Water Supply Assessment required by SB 610 or SB 221. As a result, this UWMP update includes a listing of on-going and planned subdivisions and projects as well as an allowance for "unknown projects." This Urban Water Management Plan Update conforms to the requirements of Water Code §10610 through §10657.

1.3 LAW

> 10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

1.4 PUBLIC PARTICIPATION

Prior to adopting the UWMP, the UWMP is made available for public review and hearing. Notification of the hearing is made pursuant to Section 6066 of the Government Code. Publication of notice pursuant to this Section shall be "once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including herein the first day." Upon completion of the hearing, the District shall adopt the plan as prepared or as modified after the hearing. Within 30 days of adoption of the UWMP by the District, a copy of the UWMP is to be filed with the State of California, Department of Water Resources (DWR).

As part of the preparation of this UWMP update, the District met with developers and other interested parties to gather information on their plans and tentative building schedules.

1.5 PUBLIC HEARING

A public workshop was held in the evening on December 28, 2005 at a District Board Meeting. The District Engineer made a presentation of the Draft UWMP 2005 Update and took comments from the Board of Directors and the Public. Written comments were submitted to the District on the date of the meeting. These comments were responded to at the meeting. The comments and responses are presented in Appendix O. Also included is a copy of the District's presentation. Comments were also taken from the public verbally at the Board Meeting and were responded to. This is documented in the minutes of the Board Meeting.

A public hearing, noticed in accordance with the Government Code, was held at the District offices at 9:00am on January 28, 2006. A summary of the public hearing and comments received is provided in Appendix O and this UWMP has been amended as appropriate.

1.6 ADOPTION RESOLUTION

The District prepared this update of its UWMP in May 2005 through January 2006. The updated plan is proposed to be adopted by the Board of Directors on January 28, 2006 (Appendix B) and will be submitted to the California Department of Water Resources within 30 days of Board approval thereafter. This plan includes all information necessary to meet the requirements of California Water Code § 10610 *et. seq*. (Urban Water Management Planning Act).

1.7 AGENCY COORDINATION

1.7.1 Law

> Describe the coordination of the plan preparation. 10620 (d) (2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

1.7.2 Coordination Within the District

Several agreements with the District and other agencies have been established in order to manage and preserve existing groundwater supplies. In addition, agreements have been developed to put into place mechanisms for development of new sources of water, including facilities for the distribution of recycled water.

The District first developed a needs study in 1980 to identify immediate infrastructure needs to supply water and meet fire flow requirements. This was then developed into a master plan in 1986, which was followed by updates in 1990 and 1994. In each of these plans, the City of Beaumont's General Plan and pending development projects were addressed along with the necessary water supply projects to meet these projected needs. The District has been very proactive in ensuring water supplies are available for all new development. The City of Beaumont's General Plan has been updated and is the basis for updates to the District's Potable Water and Non-potable Water Master Plans. These master plan updates are currently underway.

Senate Bill SB 901 (Costa), chaptered in 1995, required coordination between adopted community general plans and water supply. It also requires the water purveyor to assess the reliability of water supply for all projects, which were above a certain threshold level of development. The Local Government Reorganization Act of 2000 required local agencies, such as the District, to prepare a "Plan of Service" to assess the ability of the agency (District) to provide reliable and cost effective service to the proposed annexation. The District reviews the environmental documents associated with each project and provide comments as appropriate relative to water supply. Appropriate reports and studies are provided as required.

The District is also a member of the San Timoteo Watershed Management Authority (STWMA). The STWMA is a joint powers agency (JPA) consisting of Yucaipa Valley Water District, City of Beaumont, Beaumont Cherry Valley Water District, and the South Mesa Water Company. The goal of the JPA is the development of a watershed management program for the San Timoteo watershed area. This program includes specific elements to manage surface water, groundwater, imported water, and recycled water resources. This program is under development (2005) and is reported in San Timoteo Watershed Management Program, Final Phase 1 Report, prepared for the San Timoteo Watershed Management Authority by Wildermuth Environmental, Inc, March 2002.

Since the last UWMP update (2002) the District was a party to an adjudication of the Beaumont Groundwater Basin (Superior Court Case RIC 389197) which set for the rights of the parties and established the Beaumont Basin Watermaster (Watermaster). This is an important first step in the preparation of an overall groundwater management plan. The

Adjudication provided for management of Basin storage and extractions. A groundwater quality monitoring and management plan is being developed by Watermaster.

The District also purchased approximately 80 acres of undeveloped property adjacent to Noble Creek between Brookside Avenue and Cherry Valley Blvd. for use as a groundwater recharge area/community park. Numerous meetings were held with the local "park committee." Since 2001 the District has spent nearly $2 million performing testing and hydrologic studies to validate the site as a groundwater recharge area.

Table 1-1 summarizes the efforts the District has taken to include various agencies and the community in the Urban Water Management planning process. Copies of the Draft UWMP were passed out at a Board Meeting on December 14, 2005 and were available at the District's Public Counter from December 14, 2005 through January 28, 2006.

Table 1-1
Coordination and Public Involvement

	Helped write the plan	Was contacted for assistance	Was sent a copy of the draft	Commented on the draft	Attended public meetings	Was notified of intention to adopt
San Gorgonio Pass Water Agency (Wholesaler)			√			√
City of Beaumont (Wastewater Agency)		√	√			√
Yucaipa Valley Water District (Water & Wastewater Agency)						√
City of Banning (Neighboring Agency)						√
San Timoteo Watershed Management Authority		√	√			√
Beaumont Basin Watermaster		√	√			√
Citizen Groups				√	√	√
General Public					√	√
Public Library						
Various Developers		√				√

1.7.3 Cooperative Agreements with Local Agencies

The District entered into several separate cooperative agreements with the City of Beaumont, San Gorgonio Pass Water Agency (Pass Agency), Riverside County Flood Control and Water Conservation District (RCFCD), the City of Banning and others as described below to construct predefined improvements including water supply facilities.

- In March of 1993, the District and the City of Beaumont entered into a cooperative agreement to facilitate implementation of the City's General Plan and Public Facilities Financing Program to ensure logical and orderly economic development within the City and the City sphere of influence (SOI) and safe groundwater management practices in the service areas of the District. Included was the need to cooperate in a long-term program to maintain safe groundwater management practices in the service area of the District and recognize the need to establish funding mechanisms to provide for the acquisition and development of certain new sources of

water supply, including the use of recycled water and imported water, in such a way as to protect and preserve the existing water supply. A copy is attached in Appendix C.

- In March of 1993, the District and City of Beaumont entered into a cooperative agreement with the Pass Agency to ensure cooperation in developing a long-term program to maintain safe groundwater management practices, to establish funding mechanisms to provide for the acquisition and development of new sources of water supply, including recycled water and imported water, in such a way as to protect and preserve the existing water supply through the importation of supplemental water from the State Water Project (SWP) for direct use and/or groundwater recharge. A copy of the San Gorgonio Pass Water Agency Water Facilities Master Plan Cooperative Agreement is provided in Appendix D.
- In March of 1998, the District and City entered into the Implementation Memorandum of Understanding Relating to Cooperative Agreement Between the City of Beaumont and the District (Reclaimed Water Implementation Memorandum of Understanding) to provide for the construction, ownership, operation, and maintenance by the City of necessary modifications to the wastewater treatment plant and a recycled water distribution system for the City to deliver recycled water to customers and potential customers within the City, the City's SOI, and the District's SOI. This MOU was rescinded in March 2003 resulting in BCVWD being responsible for the construction of the recycled water transmission system and delivery of recycled water. Copies of both MOUs are in Appendix E.
- In January of 1999, the District, Pass Agency and the RCFCD entered into a cooperative agreement for joint use of existing percolation ponds known as Little San Gorgonio Creek Spreading Grounds. The agreement was formed to ensure that the percolation ponds would be operated in a coordinated manner to allow recharge of both local and supplemental waters to maximize public benefit while preserving existing rights of the District and RCFCD. A copy is attached in Appendix F.
- In November of 2000, the District, along with the City of Beaumont, Yucaipa Valley Water District (YVWD), and the South Mesa Mutual Water Company entered into an agreement to form a JPA, known as the STWMA to implement a regional water resource management program in the upper parts of the San Timoteo and San Gorgonio watersheds that would ensure current and future water supply availability, optimal use of water resources, with an emphasis on maximizing the use of local resources. A copy of this agreement is attached in Appendix G.
- In December 2003 the District entered into an agreement with the City of Banning to jointly fund the construction and operation of municipal production wells in the Beaumont Basin for the mutual benefit of both entities and to agree to jointly fund the construction and operation of a potable water treatment for imported water at such time in the future that this may be necessary. See Appendix R.
- In 2004 and 2005 the District has meeting regularly (almost monthly) with the Department of Water Resources, Conjunctive Water Management Branch, and the SGPWA, Cities of Banning and Beaumont, Yucaipa Valley Water District, South Mesa Mutual Water Company, STWMA, and the Beaumont Basin Watermaster to

discuss items of mutual interest and to expedite the importation of water to the Beaumont Basin.

- In 2005, the District applied for a turn-out and connection to the SGPWA's East Branch Extension to take State Project Water to the District's Groundwater Recharge area.

1.7.4 Financing Agreement with Local Agencies

- In June of 1993, the City of Beaumont Community Facilities District No. 93-1 (CFD No. 93-1) and the District entered into a financing agreement for the purpose of financing the acquisition and construction of certain public facilities within the boundaries of the City of Beaumont. Certain predefined improvements to be funded by CFD No. 93-1 include recycled water facilities. A copy of the Joint Financing Agreement is provided in Appendix H.
- In December of 1999, the District and the City of Beaumont Community Facilities District No. 93-1 entered into a financing agreement to amend and restate the above joint financing agreement to provide for the issuance of bonds by the City with respect to Assessment District No. 98-1 (AD No. 98-1) to fund water and recycled water improvements and to provide for the annexation of property to CFD No. 93-1, AD No. 98-1 or the creation by the City of another financing district in the future. A copy of the Joint Financing Agreement to reinstate CFD No. 93-1 is provided in Appendix I.

1.7.5 Settlement Agreement with Yucaipa Valley Water District

In January of 1994, the District and YVWD entered into a Settlement Agreement. This agreement was formed as a result of litigation between the two parties regarding extraction of groundwater from the Beaumont Storage Unit (BSU). The agreement set forth the groundwork for a time schedule in developing and implementing a Basin Management Plan for the joint use and management of the BSU. The agreement between the two parties also set forth defined limits on the allowable annual production of groundwater from the BSU. A copy of the Settlement Agreement is provided in Appendix J.

1.7.6 Groundwater Management

Since the 2002 UWMP update, the BSU has been adjudicated in Riverside Superior Court (RIC 389197) and set up a Watermaster to oversee the operation of the BSU. This occurred February 4, 2004. The Judgment is included in Appendix P. The powers and duties of Watermaster are delineated in the Judgment and include, among others: wellhead protection and recharge location identification, well abandonment procedures, well construction standards, overdraft mitigation, replenishment, monitoring of water levels and water quality, and development of conjunctive use programs.

This together with STWMA's Integrated Regional Water Management Program (IRWMP) ensures proper management of the areas resources.

In summary the Judgment and the IRWMP are the functional equivalent of a groundwater management plan.

1.8 SUPPLIER SERVICE AREA

1.8.1 Law

> 10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:
>
> 10631. (a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

1.8.2 Description

The District owns approximately 2,800 acres of watershed land north of Cherry Valley along the Little San Gorgonio Creek (also known as Edgar Canyon) and Noble Creek. This land has pre-1914 recorded water rights amounting to 3,000 miners inch hours (MIH) or approximately 45,000 acre-feet per year (AFY) of right for diversion of water for domestic and irrigation uses. However, the District has never had a demand that requires such large quantities of water supply; and the watersheds may not be capable of supplying such quantities during an average year. The creeks/canyons have been used for water development via diversions for irrigation and domestic service since the latter part of the 1800s.

At the turn of the Twentieth Century the District's service area was provided water by the Beaumont Land and Water Company (Company) via diversions along the Little San Gorgonio Creek. This Company owned the land that would become the Beaumont Irrigation District in 1919 and the Beaumont-Cherry Valley Water District in 1920. Even though the name has changed, the District's authority comes from the Irrigation District Law of the State of California

As the Company's land began to develop, the need for water grew. To answer the new demands the Company began the construction of wells in 1907 on the watershed lands. With the construction of the new wells the Company began to divert water for recharge in the canyon areas rather than through the direct diversions, which began in 1902. The diversions allowed the Company to recharge the underground aquifers during storm events and pump the water as needed. With the diversions the Company also purchased the riparian water rights from downstream landowners. The purchases required the Company to deliver some amount of water on a regular basis. The District today continues deliveries of water as required by agreements dating back to the early 1900s. At the present time the District is not operating the wells in Noble Canyon.

Figure 1-1 shows the District's present service boundary and SOI. The District's present service area covers approximately ten square miles, virtually all of which is in Riverside County and includes the City of Beaumont and the community of Cherry Valley. The District owned land in San Bernardino County is located just north of the Riverside-San Bernardino County line in Edgar Canyon where the District operates a number of wells and a reservoir.

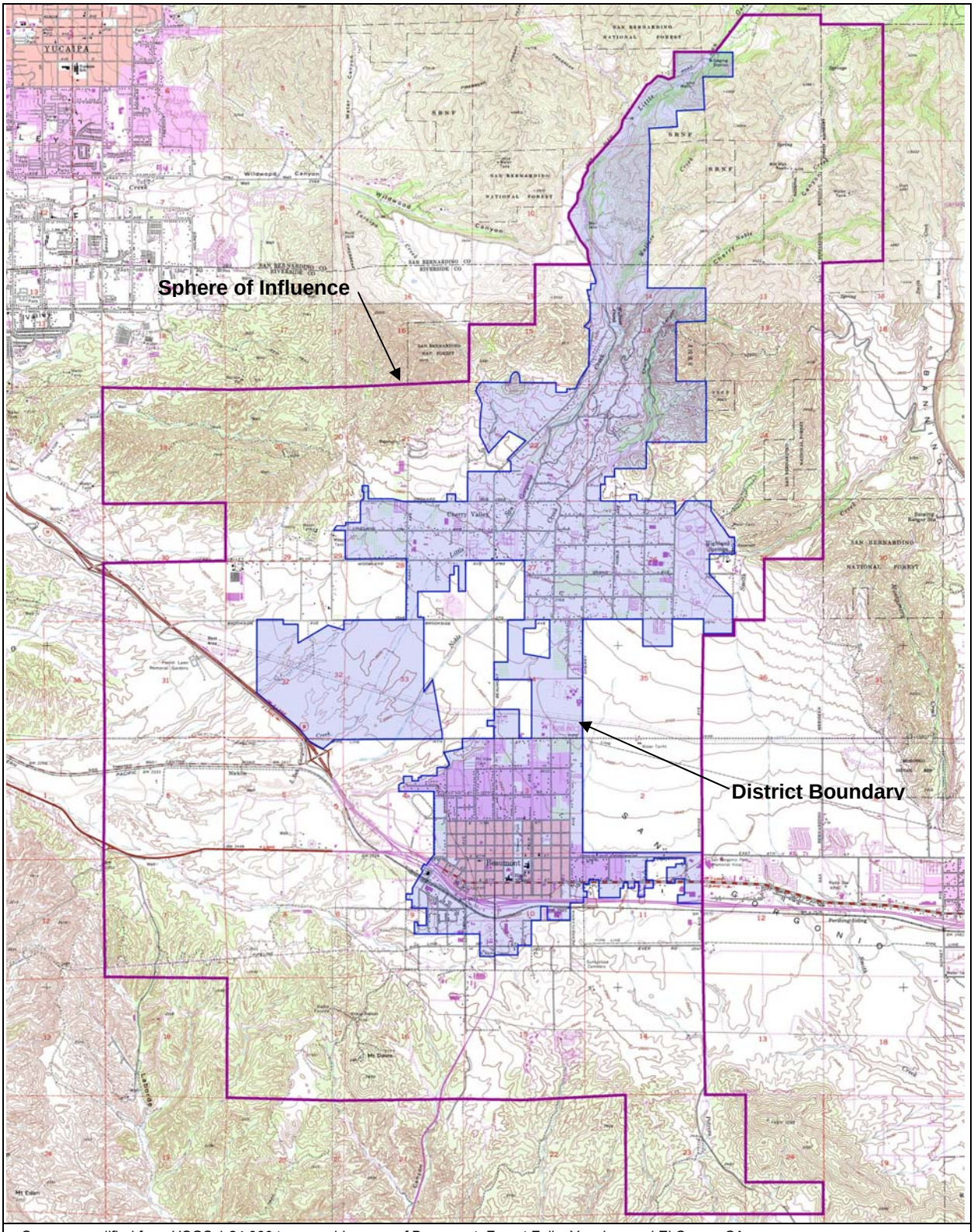
The District's SOI, or ultimate service planning area, encompasses an area of approximately 40 square miles. This SOI was established by the Riverside and San Bernardino County Local Agency Formation Commissions (LAFCOs). SOIs are

established as a planning tool and help establish agency boundaries and avoid problems in service, unnecessary duplication of costs, and inefficiencies associated with overlapping service.

The District's SOI is bounded on the west and north by the YVWD and on the east by the City of Banning. The northerly boundary of Eastern Municipal Water District (EMWD) is one-mile south of the District's southerly SOI boundary. The area between EMWD and the District's SOI is not within any SOI and could be annexed to either the District or EMWD.

In 1982, the District petitioned San Bernardino LAFCO to extend the District's SOI into the area west of Oak Glen Road known as the Wildwood Canyon area. YVWD opposed that extension, and after much discussion, the District and YVWD entered into an agreement which limited the District's SOI in San Bernardino County to the area east of Oak Glen Road in exchange for the agreement that YVWD would not export water from Wildwood Canyon.

In Riverside County, the north half of Section 30, T2S, R1E is not presently in the SOI of either YVWD or the District. This area was disputed and claimed by both agencies. Representatives of the YVWD and the District have met to discuss this area. Meetings and negotiations are currently being held which will reestablish a comprehensive SOI



Source: modified from USGS 1:24 000 topographic maps of Beaumont, Forest Falls, Yucaipa, and El Casco, CA

NORTH

0 8000

Approximate Scale in Feet

Figure 1-1
District Boundary and Sphere of Influence
Beaumont Cherry Valley Water District
Beaumont, California

between the two Districts. As of this date no formal agreement has been drawn up, however, taking a conservative planning approach, the north half of Section 30 is included in the District's service area for water service.

The service area ranges in elevation from 2,600 feet above mean sea level in Beaumont, to 2,800 feet in Cherry Valley, and over 4,000 feet in the upper reaches of the SOI.

1.8.3 Climate Characteristics

1.8.3.1 Temperature

Table 1-2 presents temperature data for the City of Beaumont obtained from the Western Regional Climate Center. The climate in Cherry Valley is similar, but temperatures are cooler in the upper elevations of the District's sphere of influence.

In Beaumont, temperatures below freezing are common in winter in the upper elevations of the service area. Temperatures over 100°F are also common in the summer.

Table 1-2
District Climate[1]

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	60.5	63.6	66.2	72.5	78.8	88.0	95.6	95.5	90.6	80.7	69.4	62.0	77.0
Average Min. Temperature (F)	38.6	39.1	40.0	42.8	47.7	52.5	58.4	58.6	55.8	49.3	43.1	39.2	47.1
Average Total Precipitation (in.)	3.76	3.44	3.12	1.36	0.63	0.16	0.23	0.22	0.51	0.60	1.65	2.09	17.76
Average Total Snowfall (in.)	1.1	0.4	0.2	0	0	0	0	0	0	0	0.1	0.3	2.0
Standard Monthly Average ETo[1]	2.81	2.76	3.78	5.31	6.10	6.97	7.08	6.83	5.67	4.15	3.31	2.56	57.33

[1] Western Regional Climate Center, Beaumont 1E 7/1/1948 – 12/30/2004

[2] CIMIS website – Winchester, CA

1.8.3.2 Precipitation

As shown in Table 1-2, virtually all the precipitation occurs during the months of November through April; most of the precipitation is in the form of rain, but snow is common in higher elevations of the service area during the winter. Some rainfall occurs in summer from thunderstorms that are associated with monsoonal moisture. Annual precipitation in Beaumont averages approximately 17.8 inches, with increasing amounts of precipitation with increasing elevation.

1.8.3.3 Evapotranspiration

Table 1-2 presents the monthly reference average ETo based on the California Irrigation Management Information System (CIMIS), Winchester, CA station. This station is located about 15 miles south of the BCVWD along state highway and is representative of the evapotranspiration in the District's service area. The reference ETo represents the is the amount of water used and evaporated by a 4 to 7-in tall stand of grass in an open

field. Water use by other crops and landscape materials can be determined using the appropriate crop coefficient in conjunction with the ETo.

1.8.4 Demographic Characteristics

1.8.4.1 Population

1.8.4.1.1 Current

The District's present service area (end of 2005) includes approximately 9,700 service connections. Census data was obtained from the Southern California Association of Governments (SCAG) for Riverside County and the City of Beaumont. The Western Riverside County of Governments (WRCOG) prepared the estimates for SCAG. Table 1-2 presents the WRCOG data for the period 2000 to 2030.

The population change from 2000 to 2005 in the City of Beaumont was dramatic – a 66% increase in population in the 5-year period. The population (18,933) was checked against the State of California Department of Finance estimates for January 2005 and found to match, so it can be concluded this is a reasonable estimate of the current population.

Data was not available separately for Cherry Valley as it is an unincorporated community and would be included in the Riverside County unincorporated population. Data from the Cherry Valley Resource Guide indicated the population was 5,945 in 1990 and 5,891 in the year 2000. No current projections were available.

To verify the population of Census data was available for the year 2000 from the U.S. Census Bureau. This data was available by census tracts and "blocks" within the census tracts. Many of the census tracts extend beyond the District's service area. This data was allocated to "in District" and "outside of District" for Beaumont and Cherry Valley. The "in District" population for Beaumont compared favorably with the year 2000 City of Beaumont population in Table 1-3.

In the year 2000 update to the UWMP, census tract/block data were used in conjunction with a Geographical Information System (GIS) boundary map of the District and it was determined that 4,580 people in the Cherry Valley census tracts were actually in the District. This is 78% of the stated Cherry Valley year 2000 population (5,945). A far less rigorous estimate was made as part of this update and determined the year 2000 Cherry Valley population that was within the District was 4,950. It was determined to use the estimate based on the more rigorous GIS analysis, i.e., 4,580. This will maintain consistency with the year 2000 UWMP update.

1.8.4.1.2 Projected

Table 1-3 presents the population, housing and people per dwelling unit served by the District. The year 2000 population (9.650) for the City of Beaumont was taken from the 2000 UWMP update. This population was based on census tract data using the GIS methodology described above to allocate it to the District boundary. This is about 85% of the stated total City of Beaumont population. For the year 2005, it was assumed that 95% of the population of the City of Beaumont (From Table 1-2) was in the District. For the year 2010 and beyond, it is assumed that all of the City of Beaumont is served by the

District. This is reasonable since new developed are annexed into the City and the District simultaneously. Also the District has an application pending with LAFCO to annex a number of parcels that are not now in the District.

Table 1-3
Historic, Current and Projected Population and Housing

(Source: SCAG)

	2000	2005	2010	2015	2020	2025	2030
City of Beaumont							
Population	11,407	18,933	27,305	43,709	59,898	75,411	90,290
Households	3,887	5,821	8,914	14,036	19,212	24,304	29,333
People/DU[1]	2.93	3.25	3.06	3.11	3.12	3.10	3.08
Increase for 5-year period		66.0%	44.2%	60.1%	37.0%	25.9%	19.7%
Unincorporated Riverside County							
Population	352,616	417,870	475,002	575,248	667,930	751,712	830,191
Households	114,948	133,655	156,466	195,665	235,183	274,346	313,281
People/DU	3.07	3.13	3.04	2.94	2.84	2.74	2.65
Increase for 5-year period		18.5%	13.7%	21.1%	16.1%	12.5%	10.4%

[1] DU = Dwelling Unit

In Table 1-3 it should be noted there are a small number of people that are not in the City of Beaumont that are served by the District (designated Beaumont Unincorporated Areas in Table 1-4) As the area develops it is assumed this population will be included with the City of Beaumont population by the year 2010.

For consistency with the year 2000 UWMP update, the year 2000 Cherry Valley population is taken as 4,580 people. The ultimate population forecast for Cherry Valley is based on the Cherry Valley Community Policies of one-acre single-family residential lots, which would forecast an ultimate build-out of approximately 24,700 people.

There is interest in more intense development within Cherry Valley as demonstrated by the proposal to construct 900 homes on the 323 acre Sunny Cal Egg Ranch. Although this project has not yet been approved, it is an indicator of development potential. The forecasted growth in Cherry Valley from 2005 through 2030 is based on the forecasted, equivalent rate of growth of the unincorporated areas of West Riverside County[1]. Most development is occurring within the City of Beaumont, and the forecast for these areas coincides with SCAG's forecast for all unincorporated cities in west Riverside County.

Based on the projections in Table 1-3, the total service area population for the District will increase by about 2.1 times the year 2005 population by the year 2015, and 4.2 times the year 2005 population by the year 2030.

The population growth is illustrated in Figure 1-2.

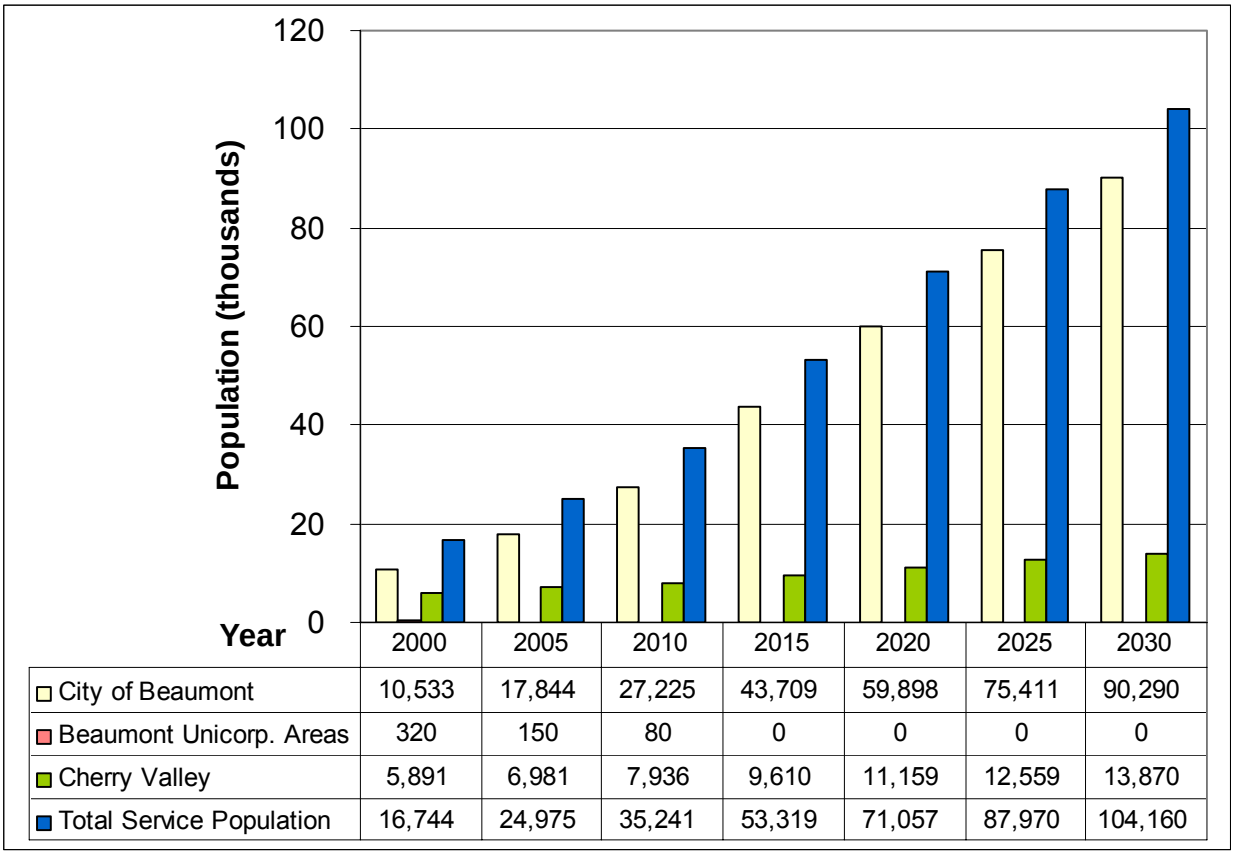
Table 1-4
Historic, Current and Projected Population and Housing Served by the District

	2000	2005	2010	2015	2020	2025	2030
City of Beaumont							
Population	10,533	17,844	27,225	43,709	59,898	75,411	90,290
Households	3,589	5,486	8,888	14,036	19,212	24,304	29,333
People/DU	2.93	3.25	3.06	3.11	3.12	3.10	3.08
Beaumont Unincorporated Areas							
Population	320	380	0	0	0	0	0
Households	100	120	0	0	0	0	0
People/DU	3.07	3.13					
Cherry Valley							
Population[1]	5,891	6,981	7,936	9,610	11,159	12,559	13,870
Households	1,900	2,200	2,600	3,300	3,900	4,600	5,200
People/DU[2]	2.70	3.13	3.04	2.94	2.84	2.74	2.65
Totals							
Population	16,744	24,975	35,241	53,319	71,057	87,970	104,160
Households	5,589	7,736	11,518	17,336	23,112	28,904	34,533
People/DU	2.86	3.24	3.07	3.10	3.07	3.05	3.02

1 Based on growth rate in unincorporated Riverside County

2 Same as unincorporated Riverside County

Figure 1-2
District Population Growth Past, Present, and Forecast
Based on SCAG Forecast



Year	2000	2005	2010	2015	2020	2025	2030
City of Beaumont	10,533	17,844	27,225	43,709	59,898	75,411	90,290
Beaumont Unicorp. Areas	320	150	80	0	0	0	0
Cherry Valley	5,891	6,981	7,936	9,610	11,159	12,559	13,870
Total Service Population	16,744	24,975	35,241	53,319	71,057	87,970	104,160

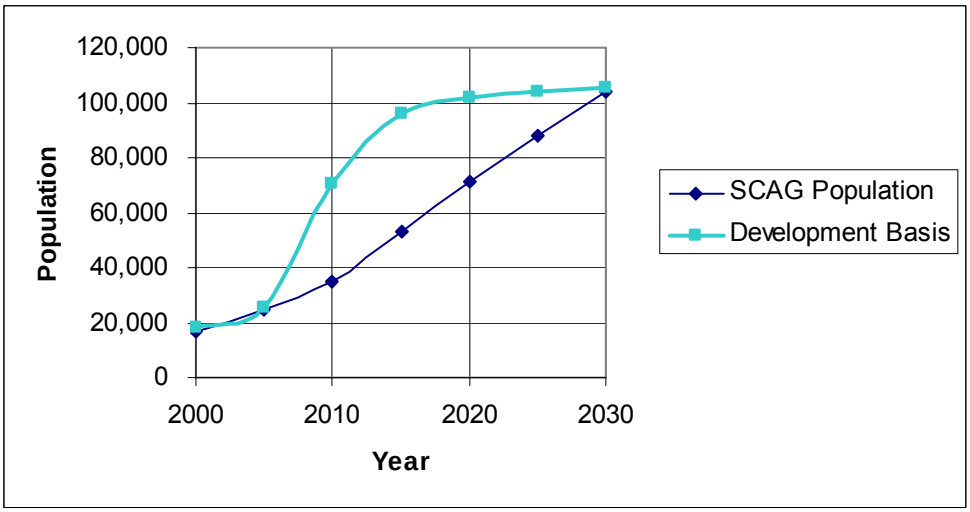
1.8.4.2 Land Development

Future water demands can be developed using either population or land development rate of growth (EDU growth). Both methods are used in this UWMP update.

Historically, the principal industry in the Beaumont and Cherry Valley area has been agriculture and agriculture related services, particularly those associated with fruit production (cherries) and egg ranching. Current trends suggest that more and more agricultural areas are being converted to residential uses as new buyers are seeking more affordable homes. The agricultural-based industries are giving way to major shopping and distribution centers, e.g., Lowes, Cross Roads Logistics, etc., which are being developed to support residential development in the area. Several major development projects have already been started or are in the planning phase. These include Sun Cal/Pardee/Ryland, Pardee Tournament Hills, Fairway Canyon, Pardee Sundance, K. Hovnanian's Four Seasons, Seneca Springs, Sunny Cal Egg Ranch, Rolling Hills and Noble Creek Vistas, just to name a few. These projects and others will have a major impact on the District's water supply system and the water resources in the entire San Gorgonio Pass (Pass) area. A number of proposed developments that have requested water service or have indicated a desire to develop in the District are shown in Table 1-5

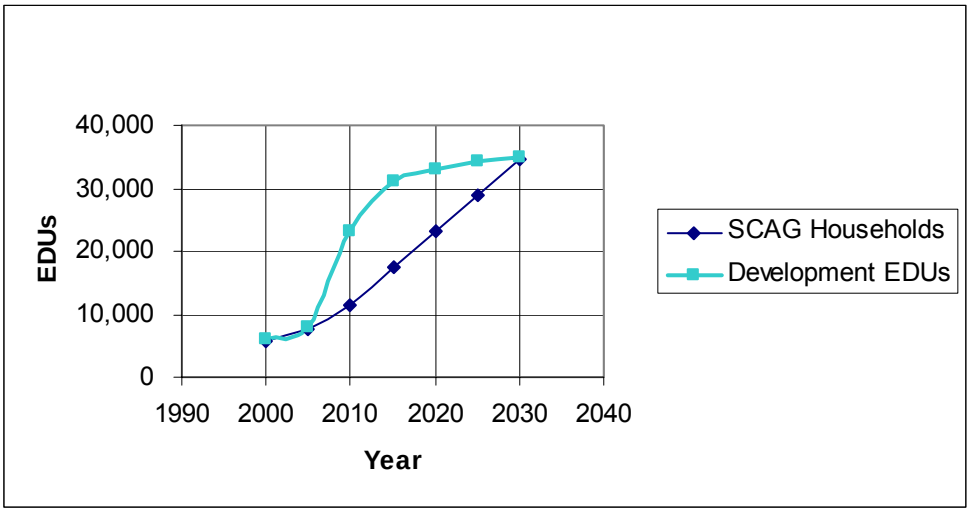
Using the SCAG estimates for the District SOI, (Table 1-3) the development growth rate would be approximately1056 households per year over the next 25 years. For the period from 2000 to 2005 the District averaged 900 water service connections per year. For the period 2003 to 2005, District averaged 1600 water service connections per year. Using the known land developments in the District's SOI and projecting their completion, the estimated growth rate over the next 25 years averages approximately 1062 EDUs per year; 2428 EDUs/year over the next 10 years and 1315 EDUs/year over the next 20 years.

Figure 1-3
District Population Forecast Comparison



When compared to the development basis, Figure 1-3 illustrates the population in the District's service area in 2030 is approximately the same. However, the growth rate using the development approach is much higher in the next decade than that projected using the SCAG basis. Figure 1-4 shows the growth in EDUs for based on the SCAG projections and the land development approach.

Figure 1-4
District EDU Forecast Comparison



Based on the District's knowledge of the service area in concert with the City of Beaumont, the District believes the year 2030 population developed by SCAG reasonably estimates long term population in the service area. However, using the land development approach, the population increases more rapidly in the next decade than is predicted by SCAG. The District believes the land development rate better reflects water demand increases in the service area. Therefore, for planning purposes the land development based estimated water supply and demand were used to generate the projected water supply and demands presented in Sections 2 and 3.

Table 1-5 presents a list of the developments requesting water service from the District.

Table 1-6 lists the projected number of water user connections by customer type.

Table 1-5
Developments Requesting Service

Project Name	Entitlement Status	Jurisdictional Status	Development Plan	EDUs, Residential	EDUs, Commercial & Industrial	Number of Equivalent Dwelling Units	Estimated Years to Build Out	Estimated Construction Start Date	Units Already Served 1/2005	Units Remaining 1/2005
Pardee -- Sundance (Deutch)	Tract Approval and Construction in Process	City	Develop Master Plan	4,500	140	4,640	10	2002	900	3740
Noble Creek Specific Plan	Specific Plan Approved	City	Market Finished Lots / Builder	-		900	10	2006		900
Cougar Ranch	Tentative Tract Map Amendment in Process	City	Builder	164	-	164	2	2004	80	84
Suncal (formerly Heartland)	SP/Tentative Tract Map Approved	City	Bulk Sale of JP Offered	994	490	1,484	10	2006		1484
K-Hovnanian Four Seasons	Specific Plan Approved, Tract Maps in Process	City	Bulk Sale Offered	2,217	88	2,305	7	2005		2305
Hidden Canyon (formerly Lockheed Aircraft, Beaumont Gateway)	SP Amendment in Process	City		400		400	4	2007		400
Seneca Springs (formerly Loma Linda)	SP / Tentative Commercial PM Approved	City		950	-	950	7	2005		950
Pardee Tournament Hills (formerly Oak Valley Partners LP / SCPGA)	Tract Approval in Process	City Sphere	Golf Courses Completed, Tract Construction Underway	2,100		2,100	10	2004		2100
Majestic Realty (formerly Olinger Commercial)	General Plan / Zoning in process	City	Market Commercial Parcels 53 acres	-	84	84	2	2007		84
Cross Roads Logistics (formerly Rolling Hills Ranch)	Tentative Tract Map Approved	City	In Escrow with Builder		100	100	2	2007		100

Table 1-5 (Cont'd)
Developments Requesting Service

Project Name	Entitlement Status	Jurisdictional Status	Development Plan	EDUs, Residential	EDUs, Commercial & Industrial	Number of Equivalent Dwelling Units	Estimated Years to Build Out	Estimated Construction Start Date	Units Already Served 1/2005	Units Remaining 1/2005
Pulte Oak Valley Greens	Tracts Approved, Construction underway	City	Market Finished Lots	2,600	140	2,740	5	2002	1500	1240
Willow Springs Area	SP on Hold	Annexation in process	Market Finished Lots	2,800	210	3,010	15	2007		3010
Shea Homes Laborde Canyon Hidden Canyon I & II (formerly Mission Viejo Co., Jack Rabbit)	SP / Tentative Tract on Hold	Annexation on Hold	Unknown	1,200	-	1,200	10	2006		1200
Sixth Street Commercial Corridor -- Xenia St East	General Plan / SP in Process	City	Multiple Owner	320	958	1,278	5	2005		1278
Beaumont Industrial / Fourth Street Area	General Plan	City	Multiple Owner		1,139	1,139	5	2006		1139
Centerstone (formerly KSE)	UNKNOWN			470		470	2	2004		470
Tract 30450 (Oak Glen Road)		County	Grading Plan in Process	27		27	5	2006		27
Sunny Cal Egg Ranch Development				900		900	8	2007		900
SunCal Fairway Canyon	Grading in process	City	Grading in Process	3,300		3,300	8	2005		3300
Curtis Tr 30891	Grading in process	City	Grading in process	241		241	2	2006		241
Royal Homes Tr 30524		City		23		23	1	2006		23
Pacific Scene Tr 31426/32020				170		170	2	2006		170
Wal-Mart/Home Depot					20	20	1	2006		20
Cameo Homes Tr 29839				73		73	2	2005		73
Corman Leigh Tr 30779 (formerly Brookfield)				194		194	2	2006		194

Table 1-5 (Cont'd)
Developments Requesting Service

Project Name	Entitlement Status	Jurisdictional Status	Development Plan	EDUs, Residential	EDUs, Commercial & Industrial	Number of Equivalent Dwelling Units	Estimated Years to Build Out	Estimated Construction Start Date	Units Already Served 1/2005	Units Remaining 1/2005
TOTALS (KNOWN SCHEDULED PROJECTS)				**23,643**	**3,369**	**27,912**			**2480**	**25432**
ESTIMATED EDUs from UNKNOWN PROJECTS						**1125**				**1125**
TOTAL						**29037**			**2480**	**26557**

Table 1-6
Number of Connections by Customer Type

	Year								
Customer Type	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
Residential	N/A	N/A	5555	9141	22604	30637	32611	33762	34512
Commercial	N/A	N/A	263	267	350	420	440	450	455
Industrial	N/A	N/A	7	8	10	12	14	16	18
Landscape Recycled Water Users	N/A	N/A	108	97	225	300	325	350	375
Agriculture	N/A	N/A	147	78	70	60	50	40	30
Other [1]	N/A	N/A	N/A	125	125	125	125	125	125
Total			6080	9716	23219	32035	34085	35283	36070

[1] Includes Construction and Fire Services

1.9 FINANCING CAPABILITY

In this UWMP update, the District has identified a number of water sources and facilities which are necessary to meet the projected demands. The District has had a capital "impact" fee on new developments since the early 1980s. In fact the District was one of the first agencies in the area to require new development to fund infrastructure improvements based on their impact to the system. In late 2004, the District had its Facilities Fee structure revisited and increases were recommended and adopted by the Board of Directors. The fee structure provides for wells, reservoirs, transmission mains, non-potable (recycled) water facilities, water treatment and new water purchase. The latter is to fund the purchase of additional imported water entitlement or participation in other local water resource projects, e.g., groundwater desalination; sea water desalination etc. As a result the District has the financing in place to meet the requirements of the UWMP.

1.10 PROJECT TEAM

The 2005 Urban Water Management Plan Update was prepared under the direction of Mr. Joseph C. Reichenberger, P.E., District Engineer with assistance from Mr. Steve Gratwick, P.E., and other staff at Parsons.

1.11 ACKNOWLEDGEMENTS

The District Engineer would like to express appreciation for the help and assistance given by the Beaumont-Cherry Valley Water District in the study, particularly Mr. C. J. Butcher, General Manager; Julie Salinas, Administrative Assistant, Jay Wilfley, General Superintendent, Tony Lara, Production Superintendent, and the rest of the District staff.

[1] *http://www.scag.ca.gov/forecast/index.htm*

SECTION 2

WATER SOURCES

2.1 LAW

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments [to 20 years or as far as data is available.] If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to part 2.75 (commencing with Section 10750), or an other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

(3) A detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available including, but not limited to, historic use records.

2.2 WATER SUPPLY SOURCES

In the early years of the District diverted surface water from Edgar Canyon (Little San Gorgonio Creek) was used for domestic and agricultural supply. Remnants of some of the diversion boxes are still visible in Edgar Canyon. Since the early 1900's, wells supplemented the surface diversions. Eventually the surface diversions were no longer used and the District relied solely on groundwater from both Edgar Canyon and the Beaumont Storage Unit (BSU or the Beaumont Basin). Groundwater is the District's only current water source. However, this is changing as described below.

- In the late 1980s the District developed a recycled water master plan and

developed an agreement with the City of Beaumont to distribute recycled water. Developer have been required to install the backbone recycled water system as well as "in Tract" systems to irrigate common greenbelt areas, street medians, parks, and schools. An extensive piping system is currently "in the ground." The City of Beaumont is in the process of designing the recycled water pump system to pressurize the recycled water distribution system. The District expects to be distributing recycled water in 2006.

- The East Branch Extension of the State Water Project is now complete and operational. (There are some operational constraints however, that limit its ability to import large quantities of water.) The District has been collecting fees from developers to purchase supplemental water over and above the San Gorgonio Pass Agency's (Pass Agency) Table A amount.
- The District purchased an 80 acre parcel, referred to as the Oda Property, on both sides of Noble Creek for the purpose of developing a groundwater recharge area. Over $1,000,000 in engineering and hydrogeologic investigations have been conducted and the site is clearly an ideal place to recharge water – either captured stormwater, recycled water, or imported water. Bids have been received for the first phase of the project, construction of percolation ponds on the northwest portion of the site, the contract has been awarded and construction is about to start (late 2005).
- A pipeline has been designed to convey State Project Water from a SGPWA Turnout at Noble Creek to the groundwater recharge area described above. The design of the turnout by the SGPWA is underway.
- The District has initiated design of a stormwater capture and recharge program to take storm runoff from Little San Gorgonio Creek, desilt it, and convey it to the Oda Property spreading grounds for recharge.
- The City of Beaumont, as a condition of development, has required developers to install detention basins for stormwater percolation. Once such system adjacent to the Pardee Sundance Development on the east side of Beaumont proved to be very effective at capturing runoff and percolating it during the winter 2004-05.

Future water sources will include recycled water, captured stormwater in Edgar and Noble Canyons and its subsequent recharge, urban runoff capture and recharge, captured underflow from the Edgar Canyon, return flows from new development, and imported water. Each of these will be described in more detail in subsequent subsections.

Table 2-1 depicts the water sources which are or planned to be used by the District to meet future demands.

Table 2-1
Current and Future Water Sources

	2005	2010	2015	2020	2025	2030
Groundwater, Edgar Canyon	√	√	√	√	√	√
Groundwater, BSU	√	√	√	√	√	√
Storm Water Capture and Recharge		√	√	√	√	√
Urban Runoff & Groundwater Recharge	√	√	√	√	√	√
Captured Infiltration from Edgar Canyon		√	√	√	√	√
Recycled Water to Offset Existing Uses Currently on wells		√	√	√	√	√
Conversion of Existing Potable Water Uses to Recycled Water and Replenishment of Groundwater Using Recycled Water		√	√	√	√	√
Imported Water purchased through SGPWA		√	√	√	√	√

The following section presents a description and analysis of the current and future water sources and describes planned projects.

2.2.1 Groundwater

Table 2-2 presents a summary of the District's wells and their current capacity.

The District currently owns and operates a total of 23 groundwater wells of which only 22 are used to any great degree. These 22 wells have a total production capability of approximately 34.6 million gallons per day (mgd).

The District's wells are located in four areas:

- Upper Edgar Canyon (San Bernardino County)
- Middle Edgar Canyon (San Bernardino County)
- Lower Edgar Canyon (Riverside County)
- BSU (Riverside County)

Note that “Edgar Canyon” is synonymous with “Little San Gorgonio Creek”.

Table 2-2
Groundwater Well Capacity Summary

Area / Location	No. of Wells	Pump Capacity	
		(mgd)	(acre-ft/yr)
Upper Edgar Canyon	9[a]	2.9	3,230
Middle Edgar Canyon	1	0.9	960
Lower Edgar Canyon	3	1.6	1,850
BSU	10[b]	29.2	32,700
TOTALS	**23**	**34.6**	**38,740**

[a]Well 13 in Upper Edgar Canyon is standby

[b] Well 2 is inactive and will be replaced in 2005-06; includes Wells 25 and 26 which are scheduled to come on line in 2006, construction has started.

The District will begin constructing 2 additional wells (Well 25 and 26) in the Beaumont Basin in 2005 and will have them on line in 2006. Well No. 2 in the Beaumont Basin will be replaced in 2006 also.

2.2.1.1 Edgar Canyon

Groundwater in Edgar Canyon primarily occurs in the younger and older alluvium valleys and within the rock fractures associated with the extensive faulting in the area. Numerous faults cross the canyon generally in a southeast-northwest direction. These act as barriers to groundwater movement and subdivide the canyon into several sub basins. Groundwater aquifer material is limited and storage is small. Groundwater levels vary from just few feet below ground surface to about 200 below ground surface. The groundwater levels and groundwater production respond quickly to stream flow. During wet years considerably more water can be pumped than during dry years.

The District prefers to use the wells in Edgar Canyon since they are the least expensive to operate and the water can be conveyed to the District customers by gravity with no additional pumping.

The District has operated numerous percolation ponds in the canyon. Surface flows in Little San Gorgonio Creek are diverted into the percolation ponds which then recharge the shallow aquifers. The District has been doing this since the late 1800s and has a pre-1914 water right to divert up to 3,000 miners inch hours (MIH) or approximately 45,000 acre-feet per year (acre-ft/yr) for diversion of water for domestic and irrigation uses. However, the District has never had a demand that requires such large quantities of water supply; and the watersheds may not be capable of supplying such quantities during an average year.

Table 2-3 presents the 5-year production from the wells in Edgar Canyon for the years 2000 - 2004.

Table 2-3
Groundwater Extractions from Edgar Canyon Wells (2000 – 2004)

Year	Total Production Acre-ft
2000	2671
2001	806
2002	592
2003	923
2004	895
5-year average	1177

From 1957 to 2000 the average production from the Edgar Canyon Wells was 1950 ac-ft/yr. However, prior to 1983, the ability to utilize the water pumped from Edgar Canyon was limited. In 1983, the District installed the Edgar Canyon Transmission Main which enabled larger quantities of water to be conveyed from the Edgar Canyon to Cherry Valley and Beaumont. Since 1983, the average amount pumped was 2454 ac-ft/yr. This is far more indicative of Edgar Canyon's ability to produce water.

For the period 1983 to 2000 statistical information on the Edgar Canyon production is presented in Table 2-4:

Table 2-4
Groundwater Extraction Statistics from Edgar Canyon Wells (1983 -2004)

Parameter	Annual Production Acre-ft
Average	2,280
Maximum	3,738
Minimum	1,117
90^{th} Percentile	3,336
10^{th} percentile	1,241

In Table 2-4, the term "10^{th} Percentile" means that 90 percent of the time the production was greater than the value shown. In other words, there would be only one year in ten that the production would be less than 1,241 ac-ft/yr.

The San Timoteo Watershed Management Authority (STWMA) estimated the safe yield from Edgar Canyon to be 2,600 ac-ft/yr.[1] This amount appears reasonable in light of the statistical data on historical pumping in Table 2-4 and will be used as the yield from Edgar Canyon.

[1] Wildermuth Environmental, Inc. (2005). Integrated Regional Water Management Program for the San Timoteo Watershed, Final Draft, prepared for the San Timoteo Watershed Management Authority, , June 2005.

The District currently maintains 40 to 50 ponds in Upper Edgar Canyon to capture and recharge winter runoff in Little San Gorgonio Creek to supplement the groundwater in the canyon and minimize the amount of water the District extracts from the BSU. These ponds have contributed to the productivity of the Edgar Canyon wells since early in the Twentieth Century. On an average annual basis, the wells have shown increased production in the canyon of approximately 800 acre-ft/yr; however the District estimates that approximately 2,600 acre-ft/yr has been captured and percolated in the Upper Edgar Canyon ponds. This estimate is based on historic pumping records and evaluation of the corresponding weather conditions. It could be overly conservative due to the fact that the historic pumping records matched the water demand on the system.

The District does not know where the difference between 2600 acre-ft/yr recharged and additional extraction has gone. It is not known if this water passes over the Banning Fault into the BSU or Singleton Storage Unit or if it flows southeasterly behind the fault barrier.

Because of this uncertainty, the District is proposing to change the diversion point to the lower end of Edgar Canyon and convey the captured water to spreading basins overlying the Beaumont Basin. This is discussed as part of the stormwater capture and recharge project to follow.

After construction of the stormwater capture project and the relocation of the diversion point downstream to the desilting basins at the mouth of the canyon, the resulting production from Edgar Canyon will be reduced since the percolation ponds in the upper and middle canyon areas will not be used as much. The District believes this will reduce the production from the Edgar Canyon wells by about 800 acre-ft/yr. Thus, one the stormwater capture and recharge project is completed the annual production from Edgar Canyon will be reduced to 1,800 acre-ft/yr, i.e., 2,600 acre-ft/yr less 800 acre-ft/yr.

The quality of the groundwater in Edgar Canyon is excellent. The total dissolved solids are in the lower 200 mg/L range; nitrate levels are low since development around the well fields is limited.

2.2.1.2 Beaumont Basin (Beaumont Storage Unit)

***Beaumont Basin*.** The Beaumont Basin or Beaumont Storage Unit (BSU) as it is also known, is one of the largest storage units in the San Gorgonio Pass area with at least 1.1 million acre-feet of water in storage and about 200,000 to 400,000 acre-feet of unused groundwater storage capacity. With the recent information developed by the District which shows the aquifer extending an additional 500 ft below that previously know, STMWA estimates the amount of water in the Beaumont Basin could be as much as 2.4 million acre-ft.[2]

The boundaries of the BSU are defined on all sides by postulated faults including the Banning and Cherry Valley Faults to the north and unnamed faults to the south, east, and west. The BSU is approximately 27 sq. mi. oriented in a northwest-southeast direction. The Cherry Valley Fault is the dividing line between the BSU and the Singleton storage

[2] "*Integrated Regional Water Management Program for the San Timoteo Watershed*," Final Draft, prepared for the San Timoteo Watershed Management Authority, Wildermuth Environmental, Inc., p 2-15, June 2005.

unit.

Groundwater within the BSU primarily occurs in the older alluvium and the San Timoteo Formation. Groundwater elevations in the BSU range from approximately 160 ft below ground surface (bgs) to 600 ft bgs.

It should be noted that the BSU has been drawn down from the steady state groundwater elevations computed in the Bloyd (1971) report. The Bloyd report shows that the groundwater elevation is approximately 100 feet below steady-state (pre-development) conditions. According to STWMA, progressive drawdown of water levels in the Beaumont Basin occurred from the 1920s to about 1980. Since then groundwater levels have stabilized. Current levels in the basin are about 75 to 120 ft below the 1920 levels and about 10 to 40 ft below the 1980 level.[3]

Groundwater flow in the BSU generally follows the ground surface topography. However, there is a groundwater divide that roughly follows Cherry Avenue, a major north-south arterial on the east side of Beaumont. To the west of Cherry Avenue, groundwater flows southwest and west toward San Timoteo Canyon; to the east of Cherry Avenue, groundwater flows southeast and east toward Banning.

In the western portion of the Beaumont Basin, the groundwater elevations intersect the surface elevations. The groundwater becomes surface water in springs and seeps along the tributary drainages to San Timoteo Wash.

During the field investigation work related to the District's Stormwater Capture and Recharge project, (described subsequently), multiple aquifers systems were identified by Geoscience Support Services Inc (Geoscience)[4]. They designated the aquifer systems beneath the recharge site as:

- Perched -- 300 to 400 ft bgs
- Shallow -- 478 to 485 ft bgs
- Intermediate – 600 to 1000 ft bgs
- Deep –below 1000 ft bgs

Prior to drilling the production well at the recharge site, the base of useable groundwater water in the Beaumont Basin was thought to be 1000 ft. This the primary production zone of most of the municipal wells in the BSU. As part of the pilot recharge project a well was drilled to 1500 ft bgs and test pumped at 3000 gpm. The water quality from this well is excellent, wth total dissolved solids concentrations in the low 200 mg/L range. During the aquifer testing, water from the deep aquifer was analyzed and found to be chemically quite different from that of the intermediate aquifer. That well became BCVWD Well No. 23 and was put into service in late summer 2004. Geoscience indicated that there were several other wells that were drilled to that depth and tapped into that deeper aquifer. In 2005, BCVWD drilled Well No. 24 into the deep aquifer and it too was test pumped at 3000 gpm. That well is due to come on line in late summer

[3] "*Integrated Regional Water Management Program for the San Timoteo Watershed*," Final Draft, prepared for the San Timoteo Watershed Management Authority, Wildermuth Environmental, Inc., p 2-13, June 2005

[4] Geoscience Support Services, Inc, (2002). *Geohydrologic Investigation Noble Creek Recharge Study*, July 1, 2002

2005. The finding of this deep aquifer greatly extends the amount of usable groundwater in the BSU.

Table 2-5 presents the BCVWD's groundwater extractions in the BSU.

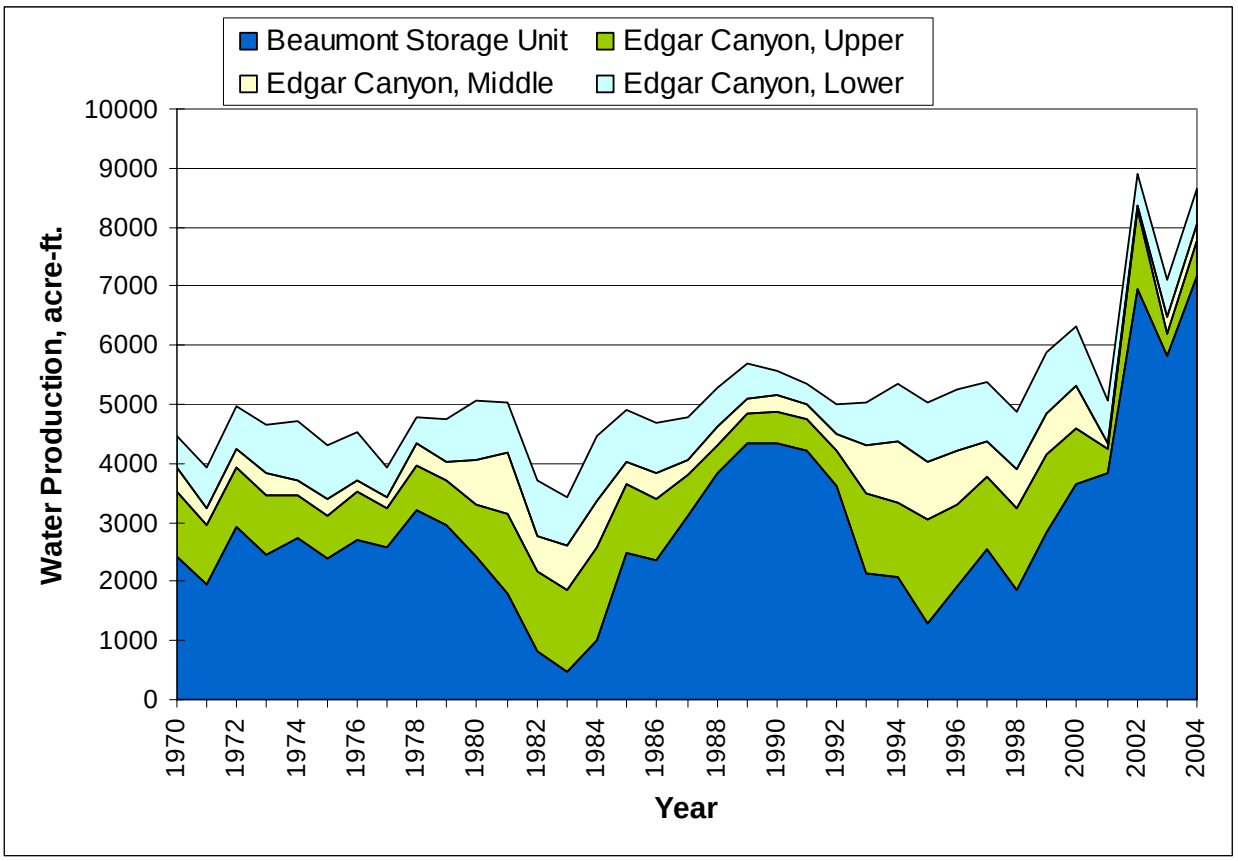
Table 2-5
BCVWD's Groundwater Extractions from Beaumont Basin Wells (2000 – 2004)

Year	Total Production Acre-ft
2000	3637
2001	3827
2002	6936
2003	5822
2004	7158
5-year average	5476

2.2.1.3 Total BCVWD Groundwater Extractions

The District's annual groundwater production from 1970 through 2004 is depicted in Figure 2-1. From 1970 to 2004, the District's average annual production was 5,166 acre-feet. The minimum annual production of 3,417 acre-feet occurred in 1983 and the maximum annual production of 8,896acre-feet resulted in 2002. For the 1970 – 2004 period, the BSU supplied approximately 57% of the total groundwater production while 19, 9% and 15% were produced from the Upper, Middle, and Lower Edgar Canyon areas, respectively. Total production in any given year is a function of the hydrologic conditions and usually mirrors the annual rainfall.

Figure 2-1
Groundwater Production from 1970 through 2004



2.2.1.4 Beaumont Basin Adjudication

The Beaumont Basin was adjudicated in February 2004, in Superior Court, Riverside County Case RIC 389197, San Timoteo Watershed Management Authority vs. City of Banning et al. The Judgment established the Beaumont Basin Watermaster (Watermaster) to administer the judgment. It established the rights of the Overlying Parties and the Appropriator Parties, e.g., the BCVWD. Some of the essential elements of the Judgment are as follows:

- The Safe Yield of the Basin is established at 8,650 acre-ft/yr.
- A controlled overdraft of the basin is allowed to create more usable storage capacity in the Basin. In the Judgment this is termed "Temporary Surplus." This has been established at 160,000 acre-ft.
- During the first ten years after adoption of the Judgment (until 2014), the Overlying Parties can extract, in total, a maximum of 8,650 acre-ft/yr. There after, the Overlying Parties can extract, in total, a maximum of 5,845 acre-

ft/yr. If, after the first 10 years, an Overlying Party pumps more than its share of the operating safe yield, the overlying producer shall provide Watermaster with sufficient funds to replace the overproduction. In the accounting, Watermaster uses a 5-year (consecutive) period. So the extractions over a consecutive 5-year period cannot exceed 5 times the annual extraction share.

- During the first ten years after adoption of the Judgment (until 2014), the Appropriator Parties can extract, in total a maximum of 16,000 acre-ft/yr. There after the Appropriating Parties can extract, in total, a maximum of 2,805 acre-ft/yr. If, after the first 10 years, an Appropriator Party pumps more than its share of the operating safe yield, the appropriator producer shall provide Watermaster with sufficient funds to replace the overproduction. Watermaster uses a similar 5-consecutive year period for accounting as described above for the Overlying Parties. BCVWD is an Appropriator Party. **BCVWD has a 42.51% share of the temporary surplus and for the first 10 years (until 2014) can extract 6,802 acre-ft/yr.**
- An Overlying Party can request water service from an Appropriator Party. For example, if an Overlying Party subdivides its property and requests an Appropriator, such as BCVWD, to supply the new subdivision with water. When this happens, the Overlying Party is precluded from extracting that volume of water provided by the Appropriating Party and the Appropriating Party shall have the right to produce the water foregone by the Overlying Party.
- On a year-to-year basis, if an Appropriating Party serves recycled water to an Overlying Party, the Overlying Party's water right is not diminished, but the Appropriator Party shall have the right to use that portion of the Overlying Water Right offset by the recycled water. In other words, serving recycled water to an Overlying Party allows the Appropriator to pump the equivalent amount of groundwater.
- There is a provision which requires the BCVWD to set aside 2,400 acre-ft/yr of projected water demand in the 2005 Urban Water Management Plan update specifically for Oak Valley Partners LP. For the 2010 update, the Judgment states this figure should be reviewed. This was done in exchange for Oak Valley forgoing any overlying water rights in excess of that stipulated in the Judgment.
- If any Overlying Party produces less than the Overlying Party's right under the Judgment, the unused portion shall be apportioned to the Appropriator Parties as follows: BCVWD 42.51%, Yucaipa Valley Water District 13.58%, South Mesa Water Company 12.48%, and the City of Banning 31.43%.
- The Watermaster has the authority to enter into Groundwater Storage Agreements with producers for the storage of supplemental water, wellhead protection and recharge, well abandonment, well construction, monitoring, replenishment, mitigation of overdraft, and collection of assessments.

The entire Judgment is contained in Appendix P.

The projected quantities of water from the from the transfer of unused Overlying Party rights to BCVWD have been estimated and are included in the water supply. These amounts are projected as follows:

Table 2-5a
Projected Transfer of Unused Overlying Party Rights to BCVWD

Year	Total Transferred Acre-ft/yr
2005	2280
2010	1507
2015	1049
2020	1049
2025	1049
2030	1049

The source of the amounts in Table 2-5a are SunnyCal Egg Ranch, California Oak Valley Golf and Resort LLC (2005, 06, and 07 only), Oak Valley Partners, Southern California PGA (through 2008 only), and the minor overlying parties.

2.2.2 Storm Water Capture and Groundwater Recharge

The District has been diverting surface flows in Edgar Canyon for groundwater recharge since 1902. Over the last twenty years the District has found that the amount of water diverted was considerably more than the amount that could be retrieved via the District wells. (Refer to the previous discussion for Edgar Canyon Wells.) It is believed that a large quantity of the diverted and percolated water flow is lost from the service area due to the severely faulted underground geology of Edgar Canyon.

In 2000 the District initiated a study of the Little San Gorgonio Creek and Noble Creek watershed areas to determine the amount of available runoff these canyons produce. Two reports were prepared by BCVWD documenting the estimate of annual runoff.

- *Resource Development, Surface Water Capture for Little San Gorgonio Creek and Other Locations*, prepared by Parsons, Pasadena, CA, September 12, 2000
- *Hydrology Study, Resource Development Program on Little San Gorgonio & Noble Creeks*, prepared by Parsons, Pasadena, CA, January 2003.

The methodology is described in detail in these reports. But the following is a brief summary.

The USGS operated a stream gauging station in Little San Gorgonio Creek (11056500) at the Oak Glen Road bridge for the period 1948 through 1985 – a 37-year period. The station measured flows from only a 1.74 sq mi (1114 acres) drainage area. (The entire Little San Gorgonio Creek watershed at the mouth of Edgar Canyon is 4610 acres.) Average daily flows are highly variable ranging from 0 to over 1000 cfs. The average

flow at the gauging station during the gauged period is 0.7 cfs (about 500 acre-ft/yr). On January 25, 1969 a flow 5,900 cfs was recorded at the gauge.

Historic precipitation data was obtained from stations in the watershed, namely Oak Glen, Oak Glen Conservation Camp and Cherry Valley. Data was available from 22 to 99 years depending on the station. From this data, an annual rainfall-runoff relationship was developed correlating the streamflow in Little San Gorgonio Creek with the rainfall. Since the amount of precipitation in a given year affects the soil moisture (more runoff in a wet year than a dry year for a given amount of rainfall), plots of rainfall versus runoff were developed for dry, wet and average years. Also since the gauged watershed was only a portion of the entire watershed, the yield for Little San Gorgonio Creek watershed was proportioned. There was no runoff data for the Noble Creek watershed, so it was estimated the runoff would be 75 percent of that of Little San Gorgonio Creek. This accounts for the lower mean sea level elevation of the watershed and the reduced orographic effect.

The study determined that from the Little San Gorgonio Creek watershed there are approximately 2,600 acre-ft/yr long-term average runoff and 1,500 acre-ft/yr long-term average runoff from the Noble Creek watershed tributary up to Orchard Avenue. Table 2-5 presents the amount of runoff from Little San Gorgonio Creek and Noble Creek.

Table 2-6
Estimated Runoff at the Mouth of Little San Gorgonio and Noble Creek

Watershed Area	Average Annual Precipitation, inches	Average Annual Water Yield, AF
Noble Creek	23	1,500
Little San Gorgonio Creek	26	2,600
TOTAL		4,100

The mean annual runoff is based on relatively long records and a reasonable approach was used to obtain the projections.

Since the preparation of these estimates, the STWMA used a proprietary model developed by their engineer to estimate the runoff from this watershed. Their results vary somewhat from the estimates in Table 2-6. STWMA is the in the process of verifying these estimates at the time of this writing. For purposes of this UWMP update, 4,100 acre-ft per year will be used as the estimated runoff from Little San Gorgonio and Noble Creeks. This may be revised as data is collected when the system is in actual operation. Subsequent updates of this UWMP can be used as the vehicle to monitor and review the water yield.

The District is currently in the final design stage for the Recharge Program. Under the Recharge Program Plan, the existing Little San Gorgonio Creek spreading grounds would be modified for use as desilting basins. These desilting basins would capture stormwater runoff from Little San Gorgonio Creek and the adjoining Wallace Canyon. Stormwater

currently captured in the Upper Edgar Canyon percolation ponds would be allowed to flow down to the modified spreading grounds (converted to desilting basins) unless the existing Upper Edgar ponds are required for flood control. Should all of the ponds downstream be full, the District will then start to impound water in the Upper and Middle Edgar Canyon percolation ponds to conserve the water and reduce the flood impact downstream. In essence, with this operation, under normal conditions, the District is moving it pre-1914 right diversion point from upper Little San Gorgonio Creek to the mouth of the canyon.

Desilted water will be conveyed down to the groundwater recharge facilities constructed on 80 acres of District-owned land at the intersection of Cherry Valley Blvd. and Beaumont Avenue. Phase 1 of the groundwater recharge ponds will be under construction in late 2005 r early 2006. Phase 2 of the recharge ponds is anticipated be constructed in late 2006.

The District also plans the construction of wetlands habitat areas on Noble Creek, and pipelines to transfer captured and desilted stormwater flows from Noble Creek. Recycled water will be released into Noble Creek in Bogart Park and allowed to flow through the wetlands before being recaptured and percolated in the recharge facilities.

The groundwater recharge facilities would be developed into a recreational park for additional beneficial use by the surrounding community.

In 2002 and 2003, the District performed a pilot test to determine percolation rates at the groundwater recharge site. This is documented in:

- "*Geohydrologic Investigation Noble Creek Artificial Recharge Study*" prepared by Geoscience Support Services Inc., July 2002
- "*Groundwater Recharge Implementation Plan, Nobel Creek Artificial Recharge Facility*," prepared by Geoscience Support Services Inc., Sept. 19, 2005.

Short term subsurface infiltration rates measured during the pilot artificial recharge testing ranged from 1 to 6 ft/day. The average short-term infiltration rate considering all of data collected over the 80-acre site was 5.5 ft/day. Geosciences estimates the long term infiltration rate to be about 3 ft/day. It was estimated that the entire 80 acre site could recharge about 18,000 ac-ft annually when fully developed. This clearly demonstrates the recharge area can easily recharge the runoff from Edgar and Noble Canyons and have capacity to recharge recycled and imported water as required.

2.2.3 Urban Runoff and Groundwater Recharge

The City of Beaumont is developing plans and requirements for urban stormwater management that will require new development to construct recharge structures along Noble, Marshall, and Potrero Creeks. This will allow for collection of storm flows for recharge from the developed areas of Cherry Valley and Beaumont, as well as from the new construction currently being planned.

In the estimate of the additional captured urban runoff, the following methodology was used:

- Only the Pardee Sundance, Oak Valley Greens and Marshall Creek areas were considered
- Impervious area was estimated to be 25% of the total gross area of the development
- Average annual rainfall is 18 inches
- Prior to development an estimated 30% of rainfall reaches the groundwater table

Captured additional urban runoff is projected to increase from 380 ac-ft/yr in 2005 to 1130 ac-ft/yr in 2025 as development occurs and more areas become covered with impermeable surfaces such as pavement and roofs..

2.2.4 Captured Infiltration from Edgar Canyon

The capture of shallow groundwater or infiltration appears feasible based on the operation of the District's resource recovery well RR1, which captures underflow of unknown origin during the winter months in the lower Edgar Canyon. The District estimates 300 acre-ft/yr could be captured by additional recovery wells.

2.2.5 Recycled Water

Currently, the District is installing recycled water pipelines as part of the overall recycled water distribution system. The pipelines and appurtenances are being installed as development occurs. As of 2005 about 18 to 20 miles of recycled water pipeline is "in the ground." Service lines are installed to irrigation systems in parks and common areas in Pardee Sundance, Three Rings Ranch, Oak Valley Greens, Pardee Tournament Hills, and elsewhere. Pipelines extend to the Oak Valley and the two PGA West golf courses.

Currently the City of Beaumont treats all of the wastewater to meet Title 22 regulations for recycled use. Presently all flows, about 2 mgd, are being discharged to Cooper Creek which is tributary to San Timoteo Creek. (The effluent percolates underground prior to reaching San Timoteo Creek.) The City is in the final stages of expanding the treatment facility to 4.0 mgd and is starting the design for the recycled water pumping station. BCVWD is in design on the first phase (2 MG) of a non-potable water storage reservoir on the site of the Phase 1 Stormwater Capture and Recharge Project. The system is designed so that any surplus recycled/non-potable water will overflow into the percolation basins and recharge the BSU. A new pipeline will also bring State Project Water to the site to blend with and supplement the recycled water. The design for the pipeline is complete and the Pass Agency is in design on the turnout and metering station on the East Branch Extension. Recycled water should be available for delivery by mid-2006.

The District's service area is in a unique position. At this point in time there is more demand for recycled water (parks, playgrounds, school yards, medians and common areas, golf courses, etc.) than the available supply.

Table 2-7
Recycled Water Available for Use

Year	Total Recycled Water Produced mgd	Total Recycled Water Produced acre-ft/yr	Total Recycled Water Available for Use acre-ft/yr
2000	1.2	1340	1050
2005	1.7	1850	1470
2010	5.4	6100	5500
2015	7.9	8885	8160
2020	8.4	9465	8710
2025	8.7	9780	9006
2030	8.9	9980	9200

The total recycled water which is available for use assumes a 300 acre-ft/yr set aside for environmental mitigation/evapotranspiration etc. and assuming only 95 percent of the net remaining can be reused either for irrigation or groundwater recharge. The recycled water flow also is based on sewering Cherry Valley beginning in 2010. It is assumed that 95% of the population of Cherry Valley will be served with a wastewater collection system. Flow from Cherry Valley in the year 2030 is 1 mgd.

2.2.5.1 Offset Existing Uses on Wells

The Beaumont Basin Adjudication states that if an Overlying Party receives recycled water for an Appropriator, .e.g., the District, the Appropriator which serves the recycled water shall have the right to use that portion of the Overlying Water Right of the Overlying Party offset by the provision of recycled water. In other words the Appropriator gets credit for the recycled water provided and can pump an equal amount from the groundwater basin. The Overlying Party must reduce his/her groundwater pumping accordingly for that period of time.

Currently recycled water pipelines extended to Oak Valley Golf Course (18 holes) and the Southern California Professional Golf Association Golf Courses (36 holes). The Adjudicated Rights for these Overlying Producers are presented in Table 2-8. It is important to note that the users in Table 2.8 can take recycled water today.

Table 2-8
Overlying Parties Which Could Substitute Recycled Water for Pumping

Overlying Party	Overlying Right acre-ft/yr	Estimated Recycled Water Use [1] acre-ft/yr
California Oak Valley Golf and Resort LLC	950	950
So. California Professional Golf Association	2,200	2,200
Total	3,150	3,150

2.2.6 Imported Water

As discussed in Section 1, the District has historically served its customers with groundwater produced from Edgar Canyon and the BSU. Wells in the canyon were supplemented by surface water capture and percolation. Recycled water will become a larger source of local supplies along with stormwater and urban runoff capture and percolation. However, these sources alone are not able to meet the needs of the District through 2030 and the District must rely on imported water delivered through the State Water Project's East Branch Extension (EBX). The local State Water Contractor is the San Gorgonio Pass Water Agency (SGPWA). The Agency has a maximum current Table A amount of 17,300 acre-ft/yr; however, the EBX Phase I is limited to 8,650 acre-ft/yr. The planning to bring the EBX to full Table A amount has begun.

The BCVWD is taking the approach that the SGPWA Table A amount is already "spoken for" and has a fee structure in place for the following:

- To purchase additional Table A water through the SGPWA from other State Water Contractors or non-State Water Contractors and have that water delivered to the BCVWD through the EBX
- Purchase Turnback Pool water through the SGPWA when available for delivery
- Purchase Article 21 Water through the SGPWA when available for delivery

The 80-acre groundwater recharge facility which will begin construction in late 2005 or early 2006 will provide the opportunity to take advantage of Article 21 water, which is typically available only on very short notice. This will allow BCVWD to "bank" water for later use.

BCVWD has included a water treatment facility fees as part of the impact fees collected from each new development. This fee is collected to construct a water treatment plant on District-owned land immediately adjacent to the State Water Project Cherry Valley Pump Station. The treatment plant would treat State Project Water for direct delivery to consumers within the District. The City of Banning and BCVWD have had preliminary discussions on a joint treatment plant, with BCVWD wheeling treated water through its

system to the City of Banning. BCVWD has constructed major transmission facilities and stubbed out transmission mains on the joint boundary between the City of Banning and BCVWD. Several years ago BCVWD purchased land for a treatment plant.

The hydraulic grade line for the inflow to the Cherry Valley Pump Station is such that the treated water can flow into the BCVWD's 2750 Pressure Zone. A 4 million gallon reservoir (Taylor Reservoir) is already constructed on the site which can serve as a clear well for the future water treatment plant. The District envisions a membrane treatment plant – most likely a microfiltration/ultrafiltration facility (MF/UF).

Initial projections for imported water range from about 3950 acre-ft per year in the year 2006 to 6870 acre-ft/yr by the year 2030. When BCVWD purchases additional Table A water, BCVWD will purchase more than the required amount to take into account the State Water Project reliability.

The Department of Water Resources has just issued a draft reliability report (November 2005) for public comment. The results of this study will be factored in to the actual purchase amount.

2.2.7 Transfer or Exchange Opportunities

> 10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:
>
> 10631 (d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

The District is collecting a "new water source" fee from all new developments. This fee structure has been in place for a number of years. The fee structure was reviewed in 2004 and an upward adjustment was made to ensure that enough money is collected to purchase new water for the development. The District periodically reviews that fee structure to make sure it is current. This fee can be used to purchase additional Table A water, Turnback Pool water or Section 21 Water as described above. It can also be used to "buy into" other agency water resource projects in exchange for imported water which can be delivered through the SGPWA via the EBX. These "other agency water resource projects" could include groundwater treatment and desalination.

Many of the groundwater basins in Southern California are impacted by excessive nitrates, high total dissolved solids, and, in some cases volatile organic chemicals (VOCs) and perchlorate. There are a number of agencies constructing or planning to construct desalters, VOC, nitrate and perchlorate removal facilities in the area including the Santa Ana Watershed Project Authority, the Chino Basin Desalting Authority and others. BCVWD could participate in one or more of these projects in exchange for State Project Water. BCVWD sees transfers and exchanges as very viable solution to providing long term water supplies.

2.2.8 Surface Water Sources

Although the BCVWD has pre-1914 rights to the waters or Little San Gorgonio Creek (Edgar Canyon) as described previously, the District does not divert these waters for direct use. To the extent possible the water is percolated into the ground for recharge. Currently significant recharge is occurring in ponds constructed by the District in the

Upper and Middle Edgar Canyon. With the construction of the Stormwater Capture and Recharge Project, the water will be percolated first in the Beaumont Basin and secondarily during floods in the existing ponds in Edgar Canyon.

The District believes this is much more efficient that constructing a surface water treatment plant for these flashy, often turbid, seasonal streamflows. As a result, direct surface deliveries is not considered a viable source of supply.

2.2.9 Summary of Water Supply Sources to Year 2030

Table 2-9 presents a "water balance" for BCVWD for each year to 2030. The Table takes into account banking of unused portions of the temporary surplus, recharge, direct deliveries of non-potable water, transfers of unused rights from Overlying Parties etc.

Table 2-9 is based on average year water supply conditions. Water sources and quantities are based on the data presented in this section. Water demands and wastewater production are based on the development rates presented in Table 1-5.

2.3 SUMMARY

The key elements for supporting the continued growth in the District are the completion of construction of a recycled water distribution system, the implementation of the Stormwater Capture and Recharge Program, the development of an urban runoff/recharge program, and the delivery and recharge of SWP water. With these projected available water sources along with the incidental water sources planned for the next twenty-five years, the District will have ample water available in 2030 and will have over 31,000 acre-ft in storage in the Beaumont Basin as is shown in Table 2-9.

Construction of a recycled water distribution system to make recycled water available to parks, playgrounds, golf courses, street medians, and freeway landscaping, will save valuable potable water resources for their highest and best use (domestic consumption).

The District's proposed Recharge Program, as discussed in Section 2.2.2, will also provide new water supply to the District for potable use. The Recharge Program with an estimated 4,100 acre-ft/yr will provide 6,700 EDU with potable water. Both the Recharge Program and recycled water distribution combined will provide a total water source for over 22,000 EDU.

Table 2-9
Water Supply and Demand and Overall Beaumont Basin Water Balance
(2005-2030)

Line	WATER BALANCE -- SOURCES vs DEMANDS	Comment	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
	Water Supply Sources														
1	State Project Water via San Gorgonio Pass Water Agency														
2	For Direct Non-potable Reuse	Same as line 19	0	0	133	805	949	448	222	0	0	0	0	0	0
3	For Recharge	Adjusted to maintain positive storage		3950	3999	4179	5029	6017	6498	6755	6782	6803	6814	6821	6827
4	Total Imported Water	line 2 + 3		3950	4132	4983	5978	6464	6721	6755	6782	6803	6814	6821	6827
5	Groundwater Produced from Edgar Canyon	Reduced when stormwater capture project comes on line	2600	2600	2600	2600	1800	1800	1800	1800	1800	1800	1800	1800	1800
6	Groundwater Produced from Beaumont Storage Unit from Temporary Surplus up to BCVWD Adjud. Right	From Judgement -- goes away after 2014	6802	6802	6802	6802	6802	6802	6802	6802	6802				
7	Total Overlier Rights Distributed to BCVWD	Based on data from watermaster	2280	1986	2595	2090	1650	1507	1364	1221	1078	1049	1049	1049	1049
8	Potable Water Supplied to Overlying Parties (Sunny Cal Egg Ranch and Surroundings)	Based on data from watermaster adjusted to include all of the adjacent areas.	0	0	69	137	206	275	343	412	480	549	549	549	549
9	Recycled or Non-potable Water Supplied to Overlying Parties	Based on data from watermaster -- golf courses	0	800	1600	2450	3150	3150	3150	3150	3150	3150	3150	3150	3150
10	Urban Runoff/Groundwater Recharge		379	470	560	651	742	832	847	862	877	892	907	921	936
11	Captured Infiltration (shallow groundwater)		0	0	0	0	0	300	300	300	300	300	300	300	300
12	Stormwater Capture/Groundwater Recharge		0	0	0	2600	2600	4100	4100	4100	4100	4100	4100	4100	4100
13	Recycled Water Recharged	Same as line 18	0	610	0	0	0	0	0	226	712	1096	1328	1440	1487
14	Total Allowable Extractions from Beaumont Storage Unit	Line 3 +(Lines 6 thru 13)	9461	14618	15624	18909	20179	22982	23404	23828	24281	17939	18196	18330	18398
15	Total Potable Water Supply	Line 5 + 14	12061	17218	18224	21509	21979	24782	25204	25628	26081	19739	19996	20130	20198
16	Water Demand (includes existing demands which can be served by non-potable water)	Estimated by BCVWD based on development	8767	10708	12689	14609	16472	18029	19421	20814	21923	22781	23213	23513	23739
17	Water Demand less existing potable water users converted to non-potable water	Estimated by BCVWD	8767	9908	11189	13109	14872	16329	17421	18661	19770	20628	21060	21360	21586
18	Recycled Water Available for Recharge	Line 24 - 23 - 22 - 21;if less than zero, indicate makeup shortfall amount	0	610	0	0	0	0	0	226	712	1096	1328	1440	1487
19	Imported Water to Recycled System to make up shortfall	See comment line 18	0	0	133	805	949	448	222	0	0	0	0	0	0
20	Subtotal Non Potable Water Demand	Lines 21 thru 23	0	1691	3282	4775	5716	5957	6400	6628	6703	6778	6828	6878	6928
21	Existing Potable Water Users Converted to Recycled Water	Estimated by BCVWD	0	800	1500	1500	1600	1700	2000	2153	2153	2153	2153	2153	2153
22	Future Recycled Water Users (not including recharge)	Estimated by BCVWD	0	91	182	825	966	1107	1250	1325	1400	1475	1525	1575	1625
23	Recycled Water Suplied to Overlying Parties	Same as line 9	0	800	1600	2450	3150	3150	3150	3150	3150	3150	3150	3150	3150
24	Recycled Water Available	Includes sewering of Cherry Valley up to 95% of households	1471	2301	3149	3970	4767	5509	6178	6854	7415	7874	8156	8318	8415
25	Water to BCVWD Storage Account	Line 15 - 17	3294	7310	7035	8400	7106	8454	7783	6967	6311	-889	-1064	-1229	-1388
26	Accumulated Water in BCVWD Storage Account			10604	17639	26039	33146	41599	49382	56349	62660	61771	60707	59478	58090

Table 2-9
Water Supply and Demand and Overall Beaumont Basin Water Balance
(2005-2030)

Line	WATER BALANCE -- SOURCES vs DEMANDS	Comment	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Water Supply Sources														
1	State Project Water via San Gorgonio Pass Water Agency														
2	For Direct Non-potable Reuse	Same as line 19	0	0	0	0	0	0	0	0	0	0	0	0	0
3	For Recharge	Adjusted to maintain positive storage	6832	6838	6843	6849	6854	6856	6858	6861	6863	6865	6867	6870	6872
4	Total Imported Water	line 2 + 3	6832	6838	6843	6849	6854	6856	6858	6861	6863	6865	6867	6870	6872
5	Groundwater Produced from Edgar Canyon	Reduced when stormwater capture project comes on line	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
6	Groundwater Produced from Beaumont Storage Unit from Temporary Surplus up to BCVWD Adjud. Right	From Judgement -- goes away after 2014													
7	Total Overlier Rights Distributed to BCVWD	Based on data from watermaster	1049	1049	1049	1049	1049	1049	1049	1049	1049	1049	1049	1049	1049
8	Potable Water Supplied to Overlying Parties (Sunny Cal Egg Ranch and Surroundings)	Based on data from watermaster adjusted to include all of the adjacent areas.	549	549	549	549	549	549	549	549	549	549	549	549	549
9	Recycled or Non-potable Water Supplied to Overlying Parties	Based on data from watermaster -- golf courses	3150	3150	3150	3150	3150	3150	3150	3150	3150	3150	3150	3150	3150
10	Urban Runoff/Groundwater Recharge		951	966	981	995	1010	1025	1040	1055	1069	1084	1099	1114	1129
11	Captured Infiltration (shallow groundwater)		300	300	300	300	300	300	300	300	300	300	300	300	300
12	Stormwater Capture/Groundwater Recharge		4100	4100	4100	4100	4100	4100	4100	4100	4100	4100	4100	4100	4100
13	Recycled Water Recharged	Same as line 18	1534	1581	1678	1770	1862	1901	1939	1978	2016	2055	2093	2132	2171
14	Total Allowable Extractions from Beaumont Storage Unit	Line 3 +(Lines 6 thru 13)	18465	18532	18650	18762	18874	18929	18985	19041	19096	19152	19208	19263	19319
15	Total Potable Water Supply	Line 5 + 14	20265	20332	20450	20562	20674	20729	20785	20841	20896	20952	21008	21063	21119
16	Water Demand (includes existing demands which can be served by non-potable water)	Estimated by BCVWD based on development	23965	24191	24417	24631	24845	24936	25028	25119	25211	25302	25394	25485	25577
17	Water Demand less existing potable water users converted to non-potable water	Estimated by BCVWD	21812	22038	22264	22478	22692	22783	22875	22966	23058	23149	23241	23332	23424
18	Recycled Water Available for Recharge	Line 24 - 23 - 22 - 21;if less than zero, indicate makeup shortfall amount	1534	1581	1678	1770	1862	1901	1939	1978	2016	2055	2093	2132	2171
19	Imported Water to Recycled System to make up shortfall	See comment line 18	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Subtotal Non Potable Water Demand	Lines 21 thru 23	6978	7028	7028	7028	7028	7028	7028	7028	7028	7028	7028	7028	7028
21	Existing Potable Water Users Converted to Recycled Water	Estimated by BCVWD	2153	2153	2153	2153	2153	2153	2153	2153	2153	2153	2153	2153	2153
22	Future Recycled Water Users (not including recharge)	Estimated by BCVWD	1675	1725	1725	1725	1725	1725	1725	1725	1725	1725	1725	1725	1725
23	Recycled Water Suplied to Overlying Parties	Same as line 9	3150	3150	3150	3150	3150	3150	3150	3150	3150	3150	3150	3150	3150
24	Recycled Water Available	Includes sewering of Cherry Valley up to 95% of households	8512	8609	8706	8798	8890	8929	8967	9006	9044	9083	9121	9160	9199
25	Water to BCVWD Storage Account	Line 15 - 17	-1547	-1705	-1814	-1916	-2018	-2054	-2090	-2126	-2161	-2197	-2233	-2269	-2305
26	Accumulated Water in BCVWD Storage Account		56543	54838	53023	51107	49089	47036	44946	42820	40659	38462	36229	33960	31655

SECTION 3

WATER USE

3.1 LAW

> 10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:
>
> 10631 (e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:
>
> (A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof; and (I) Agricultural.
>
> (2) The water use projections shall be in the same 5-year increments to 20 years or as far as data is available.

3.2 PAST, CURRENT, AND PROJECTED WATER USE

3.2.1 Past and Current Water Use

In 1990 the demand on the District supply was approximately 5,572 acre-feet, and the water demand in the year 2000 was 6,308 acre-feet. Current demand, based on the totals in the year 2004 is 8,662 acre-ft. The population grew from 12,850 in 1990 to a projected 24,975 in 2005. About 3,600 new services have been added – almost all were residential. Water use for agricultural purposes is projected to decrease within the District from approximately 3% of the total demand in 2005 to less than 1% by the year 2030.

Although the water demand is based on well production records, the amount of average daily pumpage exceeds that of the average daily demand. This is due to several factors including inaccurate meters, fire flows, main flushing, leaks, and accidental main breaks, etc. Unaccounted for water is approximately 5 to 7 percent of the total water pumped. This is easily within the range of a well-operated water system.

Table 3-1 illustrates past, current, and projected water use from 1990 to the year 2030 in AFY. The total demand includes both potable and non-potable demands.

Table 3-1
Past, Current, and Projected Water Demand
acre-ft/year

Water Use Sectors	1995	2000	2005	2010	2015	2020	2025	2030
Single & Multi-family residential	2,608	3,297	4,230	10,658	14,873	16,015	16,805	17,400
Commercial	503	630	797	2,515	3,473	3,689	3,809	3,905
Industrial	169	212	242	303	363	424	485	545
Landscape / Recycled Water Users	900	1,100	2,153	6,410	6,828	7,028	7,028	7,028
Agriculture	201	252	225	171	120	85	69	51
Other	652	817	1,140	2,229	2,231	2,050	1,800	1,523
Total	**5,033**	**6,308**	**8,767**	**22,286**	**27,888**	**29,292**	**29,994**	**30,452**

Table 3-2
Past, Current, and Projected Potable and Non-Potable Water Demand

Water Use s	1995	2000	2005	2010	2015	2020	2025	2030
Potable, AFY			6,315	15,876	21,060	22,264	22,966	23,424
Non-Potable AFY[1]			2,153	6,410	6,828	7,028	7,028	7,028
Total, AFY	5,033	6,308	8,767	22,286	27,888	29,292	29,994	30,452
Potable, mgd			5.90	14.17	18.80	19.88	20.50	20.91
Non-Potable, mgd			1.92	5.72	6.10	6.27	6.27	6.27
Total, mgd		5.63	7.83	19.89	24.90	26.15	26.78	27.18

[1] Non-Potable water demand includes only existing landscape customers converted to recycled water; recycled water to irrigate future landscape areas, and recycled water supplied to Overlying Parties.

Table 3-3, Figure 3-1, and Figure 3-2 illustrate the percent of total water use by land use designation estimated within the District's SOI for both the current and year 2030 conditions.

Table 3-3
Total Projected Water Use by Land Use Type

TYPE	2005 (%)	2030 (%)
Residential (Single & Multifamily)	48	57
Commercial	9	13
Industrial	3	2
Landscaping / Recycled Water Users e.g. parks, medians, cemeteries, golf courses, egg ranch, groundwater recharge, etc.	25	23
Agriculture	2	>1
Other e.g. construction, fire, maintenance, system losses, etc.	13	5

Figure 3-1
Total Water Use by Land Use Designation in 2005

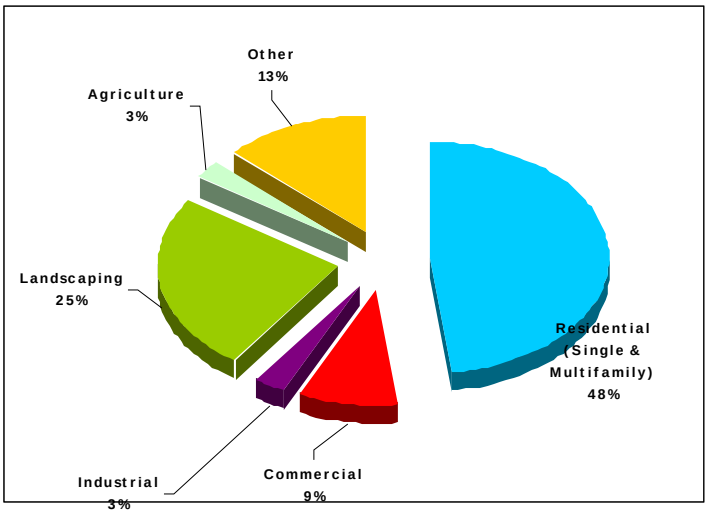
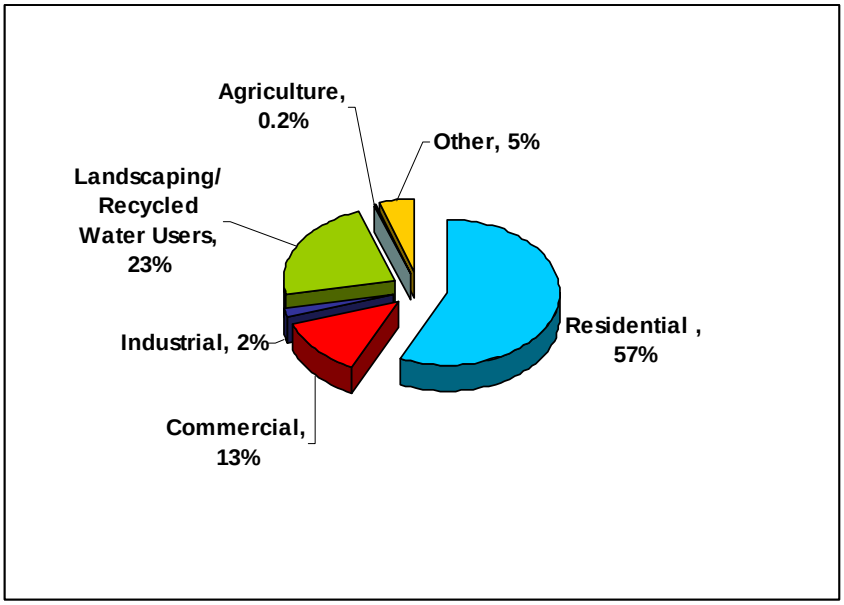


Figure 3-2
Total Water Use by Land Use Designation in 2030



The residential, commercial, and industrial developments listed in Table 3-4 will add approximately 10,940 gpm or about 17,650 AFY to the current demand. This is based on a water demand of 0.38 gpm/EDU or 0.61 AFY/EDU. Analyses of water meter records for three recent projects in Beaumont totaling 392 units indicated a range from 0.34 gpm/unit to 0.39 gpm/unit. The average of the projects studied was 0.37 gpm/unit. For the purposes of planning 0.38 gpm/EDU is used.

To determine the water demand from forecasted property development, the potable water demand was based on the "Estimated Start Date" for construction and the "Estimated Years to Build-Out" for the developments listed in Table 3-4. These estimates were made by BCVWD It is possible some of the developers could have delayed start dates or extended build-out periods. The demand is equally distributed over the number of years to completion of the development. To estimate the projected wastewater generated for residential and commercial/industrial development, 250 gpd/EDU was used. The calculation tables are provided in Appendix K

The City of Beaumont's WWTP receives wastewater from almost all of the City of Beaumont and the northeast portion of Cherry Valley. The remainder of Cherry Valley is currently unsewered; all parcels are on septic tanks. The District has noticed an increase in nitrate concentration at several of its wells in the Beaumont Basin. Because the Beaumont Basin is such a critical part of the District's water supply and the cost to remove nitrates from groundwater is very expensive, the District is planning on activating its latent sewering authority and sewer Cherry Valley, (except for the Mesa Area which will remain on septic tanks since the population is limited and the cost to extend sewer lines into this area would be very expensive. The sewering of Cherry Valley will add about 1 mgd (1,100 AFY) to the flow at the City of Beaumont's treatment plant by the year 2030. This can be recycled.

3.2.1.1 Multiple and Single-Family Residential

Residential water consumption is composed of both indoor and outdoor uses. Indoor water use includes sanitation, bathing, laundry, cooking and drinking. Most outdoor water use is to meet domestic landscaping irrigation requirements. Other minor outdoor uses include car washing, surface cleaning, and similar activities.

3.2.1.2 Commercial

The District has a mix of commercial customers, ranging from markets, restaurants, stores, insurance offices, beauty shops, and gas stations to office buildings, shopping centers and other facilities serving the population. The commercial sector is growing each year. Major supermarkets, a Wal-Mart, and Lowes have, or are in the process of, constructing facilities in Beaumont to serve the residential growth. The planned development as shown in Table 3-4 includes planned areas of commercial land use to serve the proposed increasing population. The commercial water demands are expected to increase to 13% of the total demand over the next 25 years.

Table 3-4
Water Demands for Developments Requesting Service

Project Name	TOTAL EDUs	EDUs Remaining 1/2005	Average Water Demand of Remaining Units (AFY)	Estimated Start Date	Estimated Years to Build Out
Pardee -- Sundance (Deutch)	4,640	3740	2281	2002	10
Noble Creek Specific Plan	900	900	549	2006	10
Cougar Ranch	164	84	51	2004	2
Suncal (formerly Heartland)	1,484	1484	905	2006	10
K-Hovnanian Four Seasons	2,305	2305	1406	2005	7
Hdden Canyon (formerly Lockhead Aircraft, Beaumont Gateway)	400	400	244	2007	4
Seneca Springs (formerly Loma Linda)	950	950	580	2005	7
Pardee Tournament Hills (formerly Oak Valley Partners LP / SCPGA)	2,100	2100	1281	2004	10
Majestic Realty (formerly Olinger Commercial)	84	84	51	2007	2
Cross Roads Logistics (formerly Rolling Hills Ranch)	100	100	61	2007	2
Pulte Oak Valley Greens	2,740	1240	756	2002	5
Willow Springs Area	3,010	3010	1836	2007	15
Shea Homes Laborde Canyon Hidden Canyon I & II (formerly Mission Viejo Co., Jack Rabbit)	1,200	1200	732	2006	10
Sixth Street Commercial Corridor -- Xenia St East	1,278	1278	780	2005	5
Beaumont Industrial / Fourth Street Area	1,139	1139	695	2006	5
Centerstone (formerly KSE)	470	470	287	2004	2
Tracat 30450 (Oak Glen Road)	27	27	16	2006	5
Sunny Cal Egg Ranch Development	900	900	549	2007	8
SunCal Fairway Canyon	3,300	3300	2013	2005	8
Curtis Tr 30891	241	241	147	2006	2
Royal Homes Tr 30524	23	23	14	2006	1
Pacific Scene Tr 31426/32020	170	170	104	2006	2
Walmart/Home Depot	20	20	12	2006	1
Cameo Homes Tr 29839	73	73	45	2005	2
Corman Leigh Tr 30779 (formerly Brookfield)	194	194	118	2006	2
TOTALS	**27,912**	**25,432**	**15,514**		
OTHER POTENTIAL UNKONWN PROJECTS	**1,125**	**1125**	**686**		
ADDED EDUs IN CHERRY VALLEY	**2,400**	**2,400**	**1,464**		
OVERALL POTENTIAL FUTURE DEVELOPMENT TOTALS	**31,437**	**28,957**	**17,646**		

3.2.1.3 Industrial

The District has a small industrial sector, primarily centered on manufacturing and light manufacturing. A Lowes Distribution Center has been constructed and the Cross Roads Logistics industrial park is in design. The industrial sector has not grown much prior to 2003 or so. While there will likely be a few additions to the industrial areas within the District's SOI, the impact on water demands are expected to be small. The industrial development envisioned for Beaumont is low water-using industry.

3.2.1.4 Institutional and Governmental

The District service area has a stable institutional/governmental sector, primarily local government and schools. This sector will keep pace with the growth of the city.

3.2.1.5 Landscape / Open Space

Landscaped areas including parks, medians, schools, green belt areas, and executive golf courses in the District currently consume approximately 2,153 AFY. These will be supplied by recycled water beginning in 2006. In addition to the current water demand, there are three championship golf courses, several ready-mix concrete facilities, and groundwater recharge facilities, within the District's SOI that could be served with recycled water as it becomes available. Landscape and recycled water customer demand is expected to increase to approximately 23% of the District's total demand over the next 25 years. These current and planned increases in landscape areas account for the increase in irrigation demands and represent a viable use of recycled water to offset those demands.

3.2.1.6 Agricultural

Agricultural water demand is projected to decrease in the next 25 years as the agricultural land is developed within the City of Beaumont and Cherry Valley. There will still be some agricultural use on the" Mesa."

3.3 POTENTIAL RECYCLED WATER USERS

Section 8 of this plan discusses in more detail the potential users of recycled water within the District's service area.

3.4 SALES TO OTHER AGENCIES

In 2003 and 2004 the District sold water to the City of Banning in response to an emergency with the City of Banning's water supply. The water was delivered through a temporary connection at Highland Springs Road and First Street.

As part of the development of the Sundance Project on the eastern edge of the District, permanent pipelines have been extended across Highland Springs Road at various locations to provide water to Banning. The water would be pumped by the District through the joint BCVWD-Banning Wells and delivered to Banning. The water which is pumped and delivered would come from Banning's rights in the BSU as stipulated in the Judgment and would not be "charged" against the District's water supply.

SECTION 4

WATER RESOURCE RELIABILITY

4.1 LAW

> 10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:
>
> 10631 (c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable.
>
> 10631 (c) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to replace that source with alternative sources or water demand management measures, to the extent practicable.
>
> 10631 (c) Provide data for each of the following: (1) An average water year, (2) A single dry water year, (3) Multiple dry water years.
>
> 10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:
>
> 10632 (b) An estimate of the minimum water supply available during each of the next three-water years based on the driest three-year historic sequence for the agency's water supply.

4.2 RELIABILITY

Despite rapidly growing demands from residential development in the District service area, a number of opportunities exist to provide a reliable water supply for the community through the year 2030. In the near term, the District will stabilize its demands on the BSU and Edgar Canyon areas, develop recycled water use, capture and percolate stormwater, and use imported water for water supply to customers. Available water supply from the SWP, stormwater capture, and recycled water use can be used interchangeably depending upon local and statewide hydrologic conditions to supplement a stable local groundwater yield.

In the near term, the District Phase 1 Stormwater Capture and Recharge Program is expected to be complete by the winter of 2006-07. In an average rainfall year, the BSU can be recharged over and above the District's extractions. The surplus recharge will become accumulated storage, which can be extracted during dry years and/or for future water demands. Reports by DWR[1] and the USGS[2] estimate that the volume of groundwater in storage is approximately 1.1 million acre-feet. USGS, in 1971, reported that 160,000 acre-feet of available storage capacity exists in the BSU. DWR, in 1987, indicated the available storage may be even higher, approaching 383,000 acre-feet. This

is over and above the 1.1 million acre-feet currently in storage. STWMA estimates the amount of water in the Beaumont Basin could be as much as 2.4 million acre-ft. STWMA has also indicated that the BSU has been in or near equilibrium for twenty years from 1980 to 2000.[3]

SWP water can be recharged for many years before the demand increases to meet the available supply. Since the BSU has a large amount of available capacity, this recharged water will essentially be banked for future use. Combining the runoff and recharge projects planned by the District and the recharge of SWP water, reliability of water supply in the area appears to be more than adequate over the next 25 years.

To further stabilize the local groundwater use in the Beaumont/ Yucaipa area STWMA is developing a Watershed Management Plan for the 140 square mile area that includes the service area and SOI of the District. The Plan will include all necessary components that will establish how the member agencies will protect water quality and manage the areas local water resources to allow for its best and most beneficial use.

STWMA has completed the first phase of a four phase program to produce the watershed management plan. Groundwater extractions of the BSU will be coordinated and stabilized through a court appointed Watermaster.

The District will continue to incorporate recycled water delivery systems into new development, focusing on servicing new irrigation demands with recycled water and converting existing irrigation uses to recycled water. Recycled water will provide the District a new local source of water of high reliability, both lessening the dependence on imported sources and increasing reliability of the District's total supply.

4.3 FREQUENCY AND MAGNITUDE OF SUPPLY DEFICIENCIES

The District experienced extended droughts during 1950 – 1969; 1976 – 1977; and 1987 – 1992. In all of these drought events the BSU and Edgar Canyon areas continued to provide adequate water quantities without the need to ration water supply and with continued supply to all customers. This can be attributed to the large amount of groundwater in storage in the BSU. This stored water is replenished during wet years. Approximately 57% of the District's current water supply comes from the BSU. From 1950 to 1993, the groundwater level has declined about an average of 1.4 feet per year to a groundwater elevation of approximately 2,260 feet above mean sea level (msl). However, from 1980 to 1999 the rate of decline slowed to nearly a steady state condition[4] with essentially no qualitative change in groundwater storage in the BSU[5]. This clearly demonstrates the ability of the BSU to provide adequate water during extended drought periods.

4.4 PLANS TO AFFIRM A RELIABLE WATER SUPPLY

The main operational goal of the District is to use the surface water runoff, recycled water, and the BSU groundwater basin conjunctively. The current and future supply projections through 2030 are provided in Table 2-8 and a discussion is provided Section 2.2, which summarizes future plans to affirm a reliable water supply.

As a means of addressing any future BSU overdraft conditions, the Pass Agency has constructed water transmission facilities initially capable of delivering a minimum average flow of approximately 8,650 AFY from northern California to spreading grounds for recharge of the BSU, and for direct delivery to a proposed treatment plant located in Yucaipa.[6] The Pass Agency's total State Water Project Table A amount is 17,300 AFY. To provide this amount, the current pump station and possibly other facilities, would need to be increased in capacity. As stated previously, the District has the financing in place and is collecting fess from all new development for the purchase of additional Table A water. Also when they are purchasing the Table A amount the District is purchasing more rights than they need to account for the reported reliability issues with delivery of State Project Water.

4.5 RELIABILITY COMPARISON

The data in Table 4-1 shows the minimum available water supply to the District for an average/normal water year and a theoretical drought of one year and three consecutive years. For the basis, the year 2030 development conditions will be assumed. (This represents a "worst case scenario.") Note that it is necessary to assume some level of development to evaluate the amount of recycled water available etc.

The data in Table 4-1 assume that a single year drought is more severe on an annual basis than an extended 3-year drought. The extractions for Edgar Canyon were based on analysis of the lowest annual production from the Canyon for the 1983 to the present and the production for the lowest 3 consecutive years from 1983 to present. Recycled water is available in more than sufficient quantities to meet the non potable water demand, i.e., 9,199 acre-ft/yr of recycled water versus 7,028 acre-ft/yr non-potable water demand.

A conservative approach is used in that no State Project Water is available in the single dry year and a reduced amount is available during the 3-year drought. Table 4-1 also shows reductions in stormwater capture, urban runoff/groundwater recharge, and captured infiltration.

4.5.1 Average Year Analysis at Year 2030

As provided in Table 3-2, presented previously, the projected potable water demand is forecasted to be approximately 23,424 acre-feet for the year 2030. The non-potable water demand for that same year is 7,028 acre-ft. The recycled water available in 2030 is 9,199 acre-ft/year (see Table 2-8) and is more than adequate to meet the non-potable water demands. The difference can be recharged and become part of the additional extractions. Hence in Table 4-1, only the potable water demands are considered. For this scenario, there is a short-fall shown of about 2,305 acre-ft/yr between the potable water supply and the potable water demand. This could easily be remedied by increasing the amount of imported water, but the District would rather reduce the amount of water which is "banked." Table 2-8 shows a large amount of water in storage in the BSU – a high of nearly 62,000 acre-ft by 2014. This "banked water" can be used during the drought years

Table 4-1
Available Potable Water Supply Reliability
Acre-ft/yr

			Multiple Dry Water Years		
Water Source	**Average / Normal Water Year**	**Single Dry Water Year**	**Year 1**	**Year 2**	**Year 3**
Development Basis	**2030**	**2030**	**2028**	**2029**	**2030**
SWP via San Gorgonio Pass Agency	6872		1,000	1,000	1,000
Groundwater Produced from Edgar Canyon	1,800	600	800	800	800
Groundwater Produced from Beaumont Storage Unit from Temporary Surplus up to BCVWD Adjud. Right					
Total Overlier Rights Distributed to BCVWD	1049	1049	1049	1049	1049
Potable Water Supplied to Overlying Parties (Sunny Cal Egg Ranch and Surroundings)	549	549	549	549	549
Recycled or Non-potable Water Supplied to Overlying Parties	3,150	3,150	3,150	3,150	3,150
Urban Runoff/Groundwater Recharge	1129	100	150	150	150
Captured Infiltration (shallow groundwater)	300	100	150	150	150
Stormwater Capture/Groundwater Recharge	4,100	500	750	750	750
Recycled Water Recharged	2171	2171	2093	2132	2171
Total Allowable Extractions from Beaumont Storage Unit	19,319	7619	8891	8930	8969
TOTAL Potable Water Supply	**21,119**	**8219**	**9691**	**9730**	**9769**

Assumes recycled water meets non-potable water demands

Data taken from Table 2-8

4.5.2 Single Dry Year Analysis at Year 2030

The year 2030 was selected as the single dry year for evaluation. See Table 4-1. This is a worst case scenario. The projected potable water demand is 23,424 acre-ft/yr. This assumes no conservation and no effort to encourage customers to reduce demand. This too, is a conservative assumption. Analysis of the supply and demand for the critical dry year indicates a shortfall of 15,205 acre-ft. Table 2-8 shows the District will have 33,960 acre-ft of water in storage banked in the BSU; so this can easily accommodate the critical dry year shortfall. In fact, there will still be 18,755 acre-ft in a storage in the BSU at the end of the critical dry year.

4.5.3 Multiple (3-year) Period of Below Average Water Supply

Table 4-1 shows the water supply which is available each year for the 3-year extended period of below average water supply.

Table 4-2
Water Supply Reliability Analysis
Multiple Dry Years

		Multiple Dry Water Years		
Item		**Year 1**	**Year 2**	**Year 3**
Year	**2027**	**2028**	**2029**	**2030**
Potable Water Demand, Table 2-8 acre-ft/yr		23,241	23,332	23,424
Demand Reduction Through Conservation		10%	15%	15%
Potable Water Demand including effect of Conservation, acre-ft/yr		20,900	19,800	19,910
Water Supply Available (Table 4-1), acre-ft/yr		9,691	9,730	9,769
Supply - Demand, acre-ft/yr		-11,209	-10,070	-10,141
Groundwater "Banked" in BSU, acre-ft	38,462	27,253	17,183	7,042

The BSU can be used during dry years to provide water supply from groundwater storage. The District does not anticipate the need to reduce water deliveries during a drought. The analysis shows that even with an extended drought at the end of the planning period, the District is still able to meet the demands and still have some banked water in storage. If the demand could be reduced even more by conservation than indicated in Table 4-2, the amount of "banked" water would increase.

It should be noted that the water in storage shown in Table 2-8 are based on average hydrologic conditions. There will be some years, such as 2004-2005 that more than ample supplies will be available and additional water can be recharged and "banked," building up the reserve for dry years.

The emphasis of the District is to continue to develop the recycled water infrastructure and develop the stormwater capture recharge programs. The immediate benefit for additional water resource is the capture of stormwater runoff for percolation into the BSU. The first phase of the project (2,600 AFY) is scheduled for completion by about 2007. It can be seen from Figure 4-1 that full implementation of the project, which is anticipated for completion by 2010, will generate 4,100 AFY of additional water supply. Obviously the anticipated stormwater runoff during a dry year is not expected to match the long-term average of 4,100 AFY, however, the runoff is also expected to be greater during heavy rainfall years such as the winter of 2004-05. The accumulated storage from

heavy rainfall years and surplus storage from typical years can be extracted during dry years when necessary.

4.6 INCONSISTENT WATER SOURCES

4.6.1 Law

> 10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:
>
> 10631 (c) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to replace that source with alternative sources or water demand management measures, to the extent practicable.

Groundwater is consistently available due to the size of the BSU. Recycled water is also consistently available. The District can for short periods of time, extract greater quantities of groundwater in the BSU knowing that during wet years the basin will be replenished. In addition, the Adjudication allows the District to build up a storage account for use during dry years. Section 6 discusses water shortage contingencies that can be implemented on a short-term basis to assist during periods of water supply shortages.

4.7 NEXT THREE YEAR MINIMUM WATER SUPPLY (2006 -2008)

4.7.1 Law

> 10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:
>
> 10632 (b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

4.7.2 Analysis

Table 4-3 presents a summary of the water supply and demand over the next 3 years. The law requires that the District evaluate what would happen under the “driest three year historic sequence” for the District’s water supply. The District has encountered reduce pumping from Edgar Canyon. This has been addressed elsewhere in this UWMP, but has never had a reduction in the groundwater supply from the BSU. So for this analysis, the District will use the hydrologic conditions assumed for the extended 3-year dry period, presented previously.

The District has ordered 3950 acre-ft of State Project Water from the Pass Agency and this has been approved by the Pass Agency Board. Hydrologic conditions in the Sierra Nevada Mountains in early January 2006 indicate that water deliveries should be above 80 percent of the total Table A amount by the time the snow season is over. As a result the District will assume that it will obtain 3950 acre-ft for 2006. For subsequent years, it is assumed this is cut back to 1000 acre-ft/yr.

Table 4-3
Available Potable Water Supply Next 3 Years
Acre-ft/yr

	Multiple Dry Water Years		
Water Source	**Year 1**	**Year 2**	**Year 3**
Development Basis	**2006**	**2007**	**2008**
SWP via San Gorgonio Pass Agency	3950	1,000	1,000
Groundwater Produced from Edgar Canyon	800	800	800
Groundwater Produced from Beaumont Storage Unit from Temporary Surplus up to BCVWD Adjud. Right	6802	6802	6802
Total Overlier Rights Distributed to BCVWD	1986	2595	2090
Potable Water Supplied to Overlying Parties (Sunny Cal Egg Ranch and Surroundings)	0	0	69
Recycled or Non-potable Water Supplied to Overlying Parties	800	1600	2450
Urban Runoff/Groundwater Recharge	150	150	150
Captured Infiltration (shallow groundwater)	150	150	150
Stormwater Capture/Groundwater Recharge	750	750	750
Recycled Water Recharged	610	0	0
Total Allowable Extractions from Beaumont Storage Unit	15,198	13,047	13,461
TOTAL Potable Water Supply	**15,998**	**13,847**	**14,261**
Potable Water Demand	9,908	11,189	13,109
Supply - Demand	6,090	2,658	1,152
Banked Water in BSU (Includes 3,294 acre-ft carryover from 2005)	9,384	12,042	13,194
Data taken from Table 2-8			

Table 4-3 clearly indicates the District is able to meet the water supply demands even under rather severe hydrologic conditions. The supply exceeds the demand in each of the three years and permits the District to "bank" surplus water in the BSU.

---

[1] *Ground Water Storage, Movement, and Quality Data, San Gorgonio Pass Water Agency* (September 1987). Letter Report prepared by Department of Water Resources, page 25.

[2] *Underground Storage of Imported Water in the San Gorgonio Pass Area, Southern California,* Geological Survey Water-Supply Paper 1999-D (1971). Prepared by R.M. Bloyd, Jr., page D29.

[3] San Timoteo Watershed Management Authority, *Watershed Management Program, Phase 1* (March 2002). Prepared by Wildermuth Environmental Inc., Section 2.3.2.2, page 2-7.

[4] *1994 Water System Master Plan Update* (September 1995). Beaumont-Cherry Valley Water District. Prepared by Parsons Engineering Science Inc. Pages 4-13 through 4-15.

[5] San Timoteo Watershed Management Authority, *Watershed Management Program, Phase 1* (March 2002). Prepared by Wildermuth Environmental Inc., Section 2.3.2.3, page 2-8.

[6] *Noble Creek Vistas Specific Plan Draft Environmental Impact Report* (September 2001). City of Beaumont. Prepared by Applied Planning Inc. Pages 4.3-4 and 4.3-5.

SECTION 5

SUPPLY AND DEMAND COMPARISON PROVISIONS

5.1 LAW

> 10635 (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from the state, regional, or local agency population projections within the service area of the urban water supplier.

5.2 TWENTY-FIVE YEAR COMPARISION

5.2.1 Supply vs. Demand

Table 2-9 compares current and projected water supply and demand based on the forecast increase in known developments requesting service shown in Table 1-5.

There is an accelerated water demand over the next 10 years or so based on land development which appears to start leveling off around the year 2013. It should be noted that economic downturns could flatten the rate of development in the District's service area; such conditions are not included in this UWMP.

5.2.2 Summary of Water Resource Availability

The preceding sections presented the water resource availability versus demands. Table 2-9 shows the water in "banked storage" in the BSU increasing to near 62,000 acre-ft by year 2013. The District then assumes that this banked storage volume will be reduced to about one half of that volume by the year 2030. This is a District management decision which provides some flexibility in the amount of State Water Project used and its availability.

Based on Table 2-9 it can be concluded then, there is adequate water supply to meet the projected developments for the next 25 years.

SECTION 6

WATER SHORTAGE CONTINGENCY PLAN

6.1 LAW

> 10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:
>
> 10632 (c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.
>
> 10632 (g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f) inclusive on the revenue and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

6.2 PREPARATION FOR CATASTROPHIC WATER SUPPLY INTERRUPTIONS

Water supplies may be interrupted or reduced significantly in a number of ways - drought, an earthquake that damages water delivery or storage facilities, or a toxic spill that affects water quality. This section of the UWMP describes how the District plans to respond to such emergencies so that emergency needs are met promptly and equitably.

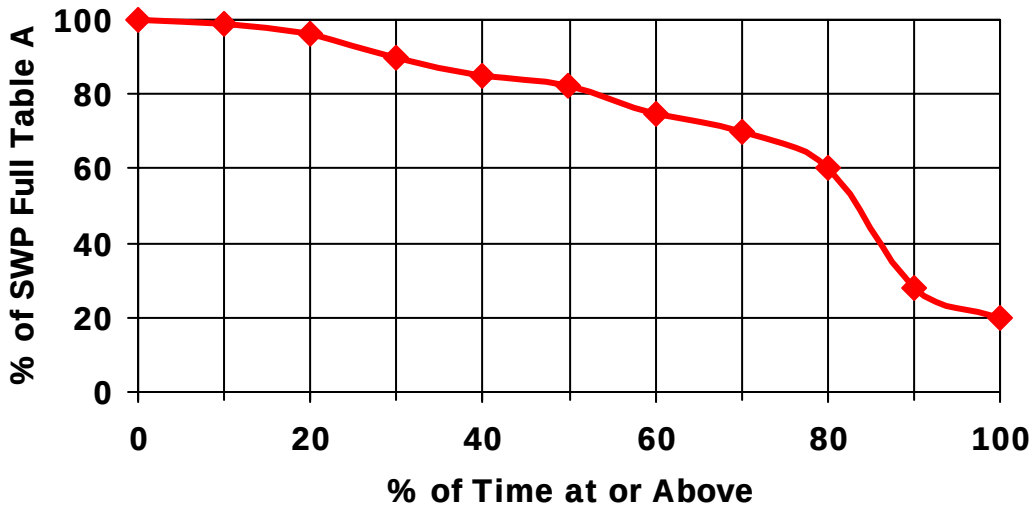
6.2.1 Drought Conditions

The Pass Agency is the wholesale contractor for delivery of SWP water to the District. The DWR has prepared a study, which projects the probability of delivering the full entitlement to its wholesale contractors. Figure 6-1, based on data from the Department of Water Resources State Water Project Reliability Report, shows that The State Water Project will be able to deliver 80% of the full Table A amount (4.1 million acre-ft) to their member Agencies approximately 50 percent of the time. The data in the report is based on rainfall and runoff records from 1922 to 1994 (72 years of data) adjusted for current and projected development conditions. During a critical 3-year drought, the project can deliver about 42% of the full Table A; in a single critical dry year, the project can still deliver 20% of full Table A.

As discussed in Section 2, the storage within BSU can be used in times of continued drought and would be recharged with natural water, recycled water and/or imported water during wet years or years of surplus water supply.

Figure 6-1

State Water Project Delivery Reliability



Source: State Water Project Delivery Reliability Report, California Department of Water Resources, Final 2002

6.2.2 Earthquake or other Natural Disasters

The San Andreas Fault passes through the Pass area. If a major earthquake were to occur along the San Andreas Fault in the Pass area many of the District's facilities could be affected.

The California Aqueduct could be ruptured by displacement on the San Andreas Fault, and supply may not be restored for a three to six week period. The situation would be further complicated by physical damage to the pumping equipment and local loss of electrical power. The DWR has a contingency Aqueduct Outage Plan for bringing the California Aqueduct back on line should a major break occur, which they estimate would take approximately four months to repair.

Experts agree it may be at least 72 hours after the earthquake before outside help could get into the local area. Extended supply shortages of both groundwater and imported water, due to power outages and/or equipment damage resulting from a natural disaster, would be severe until the water supply could be restored.

The District's recently constructed storage tanks have been fitted with flexible couplings, which should reduce the damage to local storage. The public would be asked to reduce consumption to minimum health and safety levels. This would provide sufficient time to restore groundwater production, if interrupted.

The District is also working on emergency interties at various locations along Highland Springs Road such that water can be supplied in either direction between the City of Banning and the District.

6.2.3 Contamination

The local surface and groundwater quality is excellent. The District has been monitoring the nitrate concentration in its wells over the years and has noticed a gradual increase. At this point in time, no wells are shut down because of nitrate contamination. The District is conducting investigations to determine the exact cause, but it is believed to be from septic tanks and on-site disposal systems in Cherry Valley.

To ensure that its water supply is protected, the District is planning on sewering most of Cherry Valley within the next 10 years.

Other than nitrates, there are no other known sources of contamination..

6.3 BEAUMONT-CHERRY VALLEY WATER DISTRICT EMERGENCY FACILITIES

To meet emergency water needs the District has a multi-tiered system. First, approximately 24.25 MG (73.6 acre-feet) of gravity storage is available as listed in Table 6-1. Second, emergency engine generators and backup systems are available for the wells and locations provided in Table 6-2; the wells can supply up to a maximum of 13,350 gpm, or 59.1 acre-feet per day (AF/Day). Note that the year 2005 average demand of 8767 acre-feet is equivalent to 24.0 AF/Day as a comparison. Well Nos. 6 and 12 have auxiliary engine-drives, which can be used in the event of an electrical failure. Well Nos. 4A, 14, 16, 21, and 22 have provisions for portable generator hook-up. Wells 23 and 24 have stationary generators. The District has three portable and two stationary generators. The portable units have the capability of running up to 50, 350 and 550 horsepower (hp) motors. The Cherry Yard Booster station also has a natural gas driven pump that has a capability of pumping 1,500 gpm from the Cherry reservoir to the Noble reservoir. There is an emergency booster at the Well 4A site with a 100 hp motor; which is rated at 500 gpm and delivers water to the Upper Edgar Tank. In addition, the 50 hp Noble Tank Booster, which has a rated capacity of 500 gpm, serves as a backup to the Mesa Pressure Zone and Lower Edgar Tank. In 1998 and 1999, Boosters 21A and 21B which pump from the Cherry Reservoir to Noble Reservoir were also retrofited with transfer switches. In 2001 the District installed stationary backup generators with automatic transfer switches at the headquarters and at Highland Springs Hydropneumatic system.

In addition to the wells listed in Table 6-2, the District has awarded a contract to drill two more large capacity wells on the east side of the District between Cherry Avenue and Highland Springs Road. These should be active by late 2006/ early 2007.

Table 6-1
Available Emergency Reservoir Storage 2005

Available Reservoirs	Total Aboveground Storage (MG)	Total Aboveground Storage (acre-feet))
Upper Edgar	0.75	1.5
Lower Edgar	1.0	3.1
Noble & Highland Springs	3.0	9.2
Vineland I and II	3.0	9.2
Cherry I and II	2.0	6.1
Taylor	3.9	12.0
Vineland III (in design)	3.0	9.2
2650 Zone (Construction to start in 2006)	5.6	17.2
Cherry III (Construction to start in 2006)	2.0	6.1
TOTAL	24.25	73.6

The above reservoir storage capacity does not include the Twelfth and Palm Reservoir (0.4 MG). This serves as an equalization tank for the Twelfth and Palm Boosters. .

Table 6-2
Wells With Emergency Generators and Backup Systems

Wells No.	Location	Total Capacity GPM	Total Capacity AF/Day	Remarks
12	Upper Edgar Canyon	400	1.8	Auxiliary engine drive
14	Upper Edgar Canyon	500	2.2	Portable generator connection
6	Middle Edgar Canyon	600	2.7	Auxiliary engine drive
4A	Lower Edgar Canyon	650	2.9	Portable generator connection
16	BSU	1,250	5.5	Portable generator connection
21	BSU	2,200	9.7	Portable generator connection
22	BSU	1,750	7.7	Portable generator connection
23	BSU	3000	13.3	Standby Generator
24	BSU	3000	13.3	Standby Generator
TOTAL		13,350	59.1	19.3 mgd capacity

6.4 STAGES OF ACTION

As mentioned earlier, the District presently receives all of its water supply from underground sources. Although the District presently has a relatively uninterrupted source of water to meet water demands, water shortage contingency planning is still of utmost importance to the District in order to meet future water demands during a prolonged drought condition. The District proposes a four-stage plan of action in the event of a long-term drought condition or loss of supply. The action levels for each stage are presented in the subsections that follow, and the water supply rationing stages are provided in Table 6-3.

Table 6-3
Water Supply Shortage Stages and Conditions

RATIONING STAGES				
Rationing Stages	1	2	3	4
Water Supply Conditions (% Total Reduction)	$10\%^{v}$	$10\%^{m}$ / $20\%^{v}$	$20\%^{m}$ / $30\%^{v}$	$20\%^{m}$ / $30\%^{v}$

v = voluntary reduction
m = mandatory reduction

6.4.1 Stage 1

Stage 1 occurs when the District declares a water shortage and imposes voluntary water conservation. In this stage the District shall notify all its customers that water deliveries may be reduced. The District will recommend a voluntary 10 percent water use reduction based on an established base year to be determined by the District at the time Stage 1 is

implemented. At the same time the District shall start its own public awareness program to encourage the efficient use of water. This will be accomplished by printing articles in the local newspaper and distributing literature and publications to its customers. Public awareness programs will also include educational conservation programs that would be introduced in the schools.

6.4.2 Stage 2

Stage 2 occurs when the District determines voluntary water reduction goals are not being met and the declared water shortage has been in effect for two consecutive years. In this stage the District will recommend a 10 percent mandatory reduction in water use and continue its public awareness efforts and conduct a survey on a 20 percent voluntary water use reduction program. The District at this time will begin to establish a water conservation advisory committee. This committee will comprise of officials from the District, the City of Beaumont, and the Cherry Valley community.

6.4.3 Stage 3

Stage 3 occurs if the water shortage continues for four consecutive years. In this stage the District will recommend a mandatory 20 percent and a voluntary 30 percent water use reduction from the established base year. The District will adopt a rate structure with financial incentives to encourage efficient water use. The District will also develop a plan and ordinance to enforce penalties for excessive water use and include prohibition against specific wasteful practices such as gutter flooding, open hose car washing, and driveway washdown, etc. The District will analyze the impacts of the plan on the revenues and expenditures of the District and propose measures to overcome those impacts, such as adjustments in customer rates, to help pay for additional sources of water.

6.4.4 Stage 4

Stage 4 occurs if the declared water shortage continues for one year after Stage 3. In this stage the District shall conduct a survey on the mandatory 20 percent and voluntary 30 percent water use reduction programs and consider enforcing penalties described in the ordinance developed under Stage 3.

6.4.5 Stage 4 Plus –Up to 50% Reduction in Water Supply

The Critical Dry Year identified in Table 4-1 and re-iterated in Table 6-4 results in a water supply of 41% of average (year 2030 development conditions). This represents an almost 60% reduction in water supply. The year 2030 potable water demand is 23,424 AFY. (Refer to Table 2-8).

On the average year in Table 6-4 the total potable water supply is shown as 21,119 AFY which indicates a shortfall of 2305 AFY. This shortfall is intentional in order to reduce the amount of water the District has in storage in the Beaumont Basin. The District could balance the supply and demand through the planned purchase of additional State Project Water.

Table 6-4
Available Potable Water Supply Average and Worst Case Conditions
Acre-ft/yr

Water Source	Average / Normal Water Year	Single Critical Dry Year
Development Basis Year(s) =>	**2030**	**2030**
SWP via San Gorgonio Pass Agency	6800	-
Groundwater Produced from Edgar Canyon	1,800	0
Groundwater Produced from Beaumont Storage Unit from Temporary Surplus up to BCVWD Adjud. Right	-0	-0
Total Overlier Rights Distributed to BCVWD	1049	1049
Potable Water Supplied to Overlying Parties (Sunny Cal Egg Ranch and Surroundings)	549	549
Recycled or Non-potable Water Supplied to Overlying Parties	3,150	3,150
Urban Runoff/Groundwater Recharge	1129	100
Captured Infiltration (shallow groundwater)	300	100
Stormwater Capture/Groundwater Recharge	4,100	500
Recycled Water Recharged	2171	2171
Total Allowable Extractions from Beaumont Storage Unit	19,319	7619
Total Potable Water Supply	**21,119**	**8219**
Total Potable Water Demand	**23,424**	**23,424**

Assumes recycled water meets non-potable water demands

Need to discuss impact of critical dry year on storage etc.

6.4.6 Implementation

It is highly unlikely that the District will need to implement any of these stages within the next 20 to 25 years since the available water supply even under worst case conditions is nearly equal to or greater than the demand for the next 3 years. Because of this it is not possible to link specific water supply quantities with "stages" at this time. A Groundwater Management Plan (GWMP) is being developed by STWMA and Watermaster. Data on the BSU characteristics will be collected and analyzed and the

BSU will be modeled to better understand basin performance under varying hydrologic (wet/dry) conditions. This information could be used to determine if specific trigger mechanisms are necessary to protect the BSU.

6.5 METHODS OF DEMAND REDUCTION

6.5.1 Health and Safety Requirements for Residential Households

Based on commonly accepted estimates of interior residential water use in the United States, Table 6-5 indicates minimum per capita health and safety water requirements. In Stage 1 shortages, customers may adjust either interior or outdoor water use or both, in order to meet the voluntary water reduction goals. Where mandatory reduction is required, Stages 2, 3, and 4, the District staff may recommend to the Board that residential customers meet the interior water use shown below or be subject to penalties and charges.

Table 6-5
Per Capita Health & Safety Water Quantity Calculations

	Non-Conserving Fixtures		Habit Changes[1]		Conserving Fixtures[2]	
Toilets	5 flushes x 5.5 gpf	27.5	3 flushes x 5.5 gpf	16.5	5 flushes x 1.6 gpf	8.0
Shower	5 min x 4.0 gpm	20.0	4 min x 3.0 gpm	12.0	5 min x 2.0 gpm	10.0
Washer	12.5 gpcd (1/3 load)	12.5	11.5 gpcd (1/3 load)	11.5	11. 5 gpcd (I /3 load)	11.5
Kitchen	4 gpcd	4.0	4 gpcd	4.0	4 gpcd	4.0
Other	4 gpcd	4.0	4 gpcd	4.0	4 gpcd	4.0
Total	gpcd	68.0	Total	48.0	Total	37.5

[1] Reduced shower use results from shorter and reduced flow. Reduced washer use results from fuller loads.
[2] Fixtures include ULF 1.6 gpf toilets, 2.0 gpm showerheads, and efficient clothes washers.

6.5.2 Consumption Reduction Methods and Prohibitions

The City of Beaumont Water Use Regulations Ordinances (Appendices L-M) include prohibitions on various wasteful water uses such as washing sidewalks and driveways with potable water, and allowing plumbing leaks to go uncorrected more than 48 hours after customer notification.

6.5.3 Penalties or Charges

Any customer violating the regulations and restrictions on water use set forth in the Water Use Ordinance shall receive a written warning for the first such violation. Upon a second violation, the customer shall receive a written warning and the City may cause a flow-restrictor to be installed in the service. If a flow-restrictor is placed, the violator shall pay the cost of the installation and removal. Any willful violation occurring subsequent to the issuance of the second written warning shall constitute a misdemeanor and may be referred to the City of Beaumont Police Department for prosecution.

Table 6-6
Penalties and Charges

Examples of Penalties and Charges	Stage When Penalty May Take Effect
Penalties for not reducing consumption	**4**
Charges for excess use	**4**
Flat fine	**4**
Charge per unit over allotment	**4**
Flow restriction	**4**

6.5.4 Water Use Restrictions for New Construction

In Stage 4, it may be necessary to discontinue all use of construction water (unless recycled water is used), even if a permit has been issued, and consider banning all use of water for nonessential uses, such as new landscaping and filling pools.

6.6 MONITORING WATER DEMANDS & USAGE TRENDS

The District keeps historic and current pumping records on all of its wells and implemented a computer accounting system on its customer's water usage. These records are then used to determine seasonal and annual fluctuations in water use. Within the District, since total water pumped closely approximates water use, the District can compare pumping records from one year to the next to determine actual reductions in water use. The District also, through its accounting system, is able to determine historic and current use by service account and therefore track customer usage during a drought and evaluate the effectiveness of each conservation measure implemented under this plan.

6.7 IMPACTS OF WATER RESTRICTIONS ON REVENUES AND EXPENDITURES

The District water rate structure includes a meter charge (bimonthly, regardless of how much water is used) and a commodity charge per 100 cu ft of water used. During times of drought, the revenue from the commodity charge would be reduced by an amount equal to the water conservation effort. The meter charge would not be affected. The reduction in consumption would also reduce the District's energy cost to produce the water.

For 2005, the budget estimated $4.7 million in water sales revenue (meter charge plus commodity charge) and over $890,000 in purchased power to pump the water. About $2.8 million of the $4.7 million water sales revenue is do to the commodity charge. Assuming a given conservation effort impacts the commodity revenue and the energy costs equally, a 10% reduction in water sales would result in net loss of $200,000, (sales less power cost savings). A 20% reduction in water sales would result in a net revenue loss of $400,000. To put this in perspective, the District's total operating revenue for 2005 is $6.56 million. The $400,000 lost revenue represents 6% of the budget.

The year 2005 budget included $92,000 for emergency reserve and $210,000 for

operating reserve. These could be used to absorb the cash shortfall for one year, but it would have to be made up the following year with an appropriate rate increase.

For the case where the water supply would be reduced by 50%, the District would continue to supply water to its customers relying on banked water and the large BSU underground reservoir. Water sales would be reduced but not by 50%. The District anticipates that a 20 to 30% reduction in water sales would result due to increased public awareness, penalties, and tiered rates.

Other factors that should be considered include:

- Increased staff cost with public information programs, water conservation programs, audits, inspections etc. This could amount to as much as one more staff position.
- Increased public outreach costs for publication material, ads, etc.
- Increased cost for water conservation devices such as low flush toilets, hose nozzles etc.

DRAFT

RESOLUTION _____

**RESOLUTION OF THE BOARD OF DIRECTORS
OF THE BEAUMONT CHERRY VALLEY WATER DISTRICT
WATER SHORTAGE CONTINGENCY REGULATIONS**

The Board of Directors of the Beaumont Cherry Valley Water District (District) does hereby resolve:

WHEREAS, the Urban Water Management Plan (UWMP), 2005 Update, adopted by the Board contains provisions relating to water shortages and contingencies due to catastrophic outage of state, regional and District supply facilities, hydrologic conditions resulting in lower than normal water supply or other factors which prevent the District from providing as much water as is customary; and

WHEREAS, the District endeavors to supply water in sufficient quantities to protect public health; and

WHEREAS, the District has established four stages of action in the UWMP 2005 Update which impose both voluntary and mandatory reductions in water use depending on the severity of the shortage,

NOW, THEREFORE, BE IT RESOLVED, by the Board of Directors of the District as follows:

1. The General Manager is hereby authorized to declare a Water Shortage according to the Water Shortage Contingency Plan in the UWMP 2005 Update
2. The General Manager is hereby authorized and directed to implement the various stages identified in the UWMP 2005 Update
3. The General Manager shall monitor water use and recommend to the Board of Directors additional measures as may be required to conserve water resources and ensure public health.

ADOPTED this _____

BEAUMONT CHERRY VALLEY WATER DISTRICT

_____

President of the Board of Directors of the

Beaumont Cherry Valley Water District

SECTION 7

WATER DEMAND MANAGEMENT MEASURES

7.1 LAW

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

(A) Water survey programs for single-family residential and multifamily residential customers.

(B) Residential plumbing retrofit.

(C) System water audits, leak detection, and repair.

(D) Metering with commodity rates for all new connections and retrofit of existing connections.

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

(I) Conservation programs for commercial, industrial, and institutional accounts.

(J) Wholesale agency programs.

(K) Conservation pricing.

(L) Water conservation coordinator.

(M) Water waste prohibitions.

(N) Residential ultra-low-flush toilet replacement programs.

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of such savings on the supplier's ability to further reduce demand.

(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, which offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.

(2) Include a cost-benefit analysis, identifying total benefits and total costs.

(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

(h) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long term supply.

(h) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to the council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).

7.2 WATER DEMAND MANAGEMENT MEASURES

The District has implemented several water conservation measures beginning as early as the 1980 Immediate Needs Study. Presently the District is not signatory to the Memorandum of Understanding (MOU) regarding Urban Water Conservation in California but the District does implement several of the Best Management Practices (BMP) identified in the MOU.

The District's 1986 Urban Water Conservation Plan (UWCP) took a list of conservation methods and assessed whether they were currently being implemented and, if not, what level of effort was required. This was also conducted for the District's 1990 UWCP and 1995 UWMP along with an initial screening and assessment. Table 7-1 lists a summary of conservation methods from the 1986 UWCP.

Table 7-1
Status of 2000 Water Conservation Measures

			2000 Status	Current Status
I.	Education and Public Information			
	A.	Local Water Conservation Advisory Committee	X	+
	B.	Conservation Literature		
		1. General Water Conservation Brochure	O	O+
		2. Landscape Brochure with Plant List	+	+
		3. Brochures for Specific Water Users	+	+
	C.	Previous Year's Use on Water Bills	X	X
		1. Public Relations	O	O+
		2. Public Speaking Presentations	O	O+
		3. Demonstration Low Water-Using Landscapes	X	X
		4. Promotional Campaign with Nurseries and Irrigators	X	X
		5. Awards for Conservation Developments	X	X
	D.	Work with Large Water Users (Landscapers, Agriculture, and Parks)	+	O+
	E.	In-School Education	X	+
	F.	Information on Federal and State Laws and Programs	+	+
II.	Water Management Programs			
	A.	Water Loss Reduction Techniques		
		1. System-Wide Water Audit	+	O
		2. Leak Detection Program		
		a. For BCVWD's System	O	O+
		b. For Customer's Side	X	O+
		3. Meter Calibration and Replacement Program	O	O+
		4. Corrosion Control	O	O+
		5. Valve Mapping and Exercising Program	O	O+
	B.	Metering Existing Customers	O	O+
	C.	Device Distribution	+	+
	D.	Meter Loan Program, Construction Water Users	O	O
	E.	Water Waste Prohibition	O	O
	F.	Conservation Pricing	O	O
	G.	Financial Incentives	O	O
III.	Regulations			
	A.	Environmental Impact Reports/Statements	O	O
	B.	Water Waste Reduction Program	+	+
	C.	Water Conservation Ordinances	+	+
		1. Requirements for Large Water Users (Landscape, Agriculture, and Parks)	O	O
		2. Self-closing Faucets - Commercial and Institutional	X	X
		3. Low Water-Using Landscapes	X	+
		4. Metering New Customers	O	O
		5. Ultra-low-flow Toilets	X	+
IV.	Water Shortage Contingency Plan		+	+

X =Recommended Implementation
+ = Recommend Increased Effort
O =Currently Implemented
O+=Continue to Implement

The 1986 and 1990 UWCPs focused on measures that reduced and/or regulated the water used for agricultural and landscape purposes. This was, and still is, the area with the greatest potential for water conservation. Such measures as the installation of drip irrigation systems and restructuring of water rates for irrigation have been implemented. The conservation measures focused on in the 1990 UWCP took three approaches: system modification, conservation incentives, and public education. Because of the extent of orchard irrigation within the District, it was believed that the greatest potential for current water conservation through system modification existed in the conversion to drip irrigation systems. Other measures were: the use of low flow equipment in new developments (i.e., ultra-low-flow water use toilets, shower flow restrictors, and self closing faucets), conservation incentives (which take the form of water rate increases and seem to have the greatest impact on reducing water consumption), and public education (which is used to emphasize a relationship between the individual consumer and the District). The latter also informs customers of conservation methods as well as instills conservation ethics.

As indicated in the 2000UWMP, the District was and is experiencing much new land development, which previously was used for agricultural purposes. This land is in the process of being turned into commercial and residential uses which use ULF toilets, low flow showerheads etc. Since the mid-1990s, the District's connection base has doubled which means that at least half of the new connections have low flow fixtures..

The District is requiring developers to install separate recycled water pipelines to serve street medians, parks, playgrounds, schoolyards and common areas. Initially these areas will be served with potable water, but will be converted over to recycled water in 2006. In addition the District is looking for opportunities to use recycled water for other non-potable uses. For example, the District has an agreement with an existing concrete "ready mix" plant to use recycled water as soon as it is available. This should occur within the next few years.

Table 7-2 summarizes and briefly describes the water demand management measures and indicates if the District in some form has implemented the measure.

Table 7-2
Recommended Water Demand Management Measure and Their Status as of 2005

Measure	Definition	Implemented (Y/N)
Water Survey Audits for Single-Family and Multi-Family Residential Customers	Inspect for leaks in households and to improve the efficiency of landscape irrigation water use.	N
Residential Plumbing Retrofits	Replace devices with high efficiency (low flow) devices. Retrofitting of residential toilets and showers with water saving devices.	N
Distribution System Water Audits	Reduce system leakage. Repair pipes.	Y
Metering with Commodity Rates	Test and replace defective meters. Meter all new connections.	Y
Large Landscapes Conservation Programs	Review water irrigation techniques such as water cycle times for golf courses, schools, parks, and cemeteries. Establish rotating use schedules for irrigation, which reduces the impact of peak demands. Convert to recycled water wherever possible.	Y
High-Efficiency Washing Machine Rebate	Customer rebates for high-efficiency (horizontal-axis) clothes washers.	N
Public Information Programs	Describe and make available water conservation information. Emphasize the relationship between the individual consumer water use to the total District water demand.	Y
School Education Programs	Teach water conservation methods and instill a conservation ethics.	Y
Conservation Programs for Commercial and Industrial Users	Evaluate existing sites water needs and recommend water efficiency measures. Look at opportunities to use recycled water.	Y
Wholesale Agency Assistance	Wholesale water suppliers to provide incentives or equivalent resources to benefit their retail suppliers. The District is not a wholesale water supplier.	N
Conservation Pricing	Charge irrigators for actual amount of water used. Eliminate reduced rate for irrigation water.	Y
Conservation Coordinator	Designate a water conservation coordinator to promote and enforce conservation programs	N
Water Waste Prohibitions	Develop methods to prohibit gutter flooding and single pass cooling systems and develop measures to encourage, recirculating water systems in conveyor car wash, commercial laundry systems, and in decorative fountains.	N
Ultra-Low-Flush Toilets	Incentive programs to replace high-water-using toilets.	N

Measures considered for this 2005 UWMP update fall into six categories: (1) inside residential, (2) industrial and commercial measures, (3) landscape measures, (4) distribution system measures, (5) public relation and education measures, and (6) pricing measures. The majority of the programs recommended will focus on regulating new developments. The new developments place additional strain on existing water supplies. Water conservation measures are easiest and most cost effective to install in new construction because there are no removal or replacement costs. A large percent of the total population increase in the City of Beaumont in the next 10 to 15 years will be as a result of new development; therefore less emphasis is placed on measures involving existing residential, industrial, and commercial customers.

7.3 BMP 1-WATER SURVEYS PROGRAMS FOR SINGLE-FAMILY RESIDENTIAL AND MULTI-FAMILY RESIDENTIAL CUSTOMERS

The District presently does not implement this demand management measure in performing water audits for single-family and multi-family residential sites.

7.3.1 Implementation or Scheduled Implementation

The District's long range goal is to develop guidelines for implementing a water survey for single and multi-family residential customers. Initially this will be in the form of information items, bill stuffers, etc. to inform customers how to monitor their consumption. Some guidelines will be provided so those customers can compare themselves to a "baseline".

7.4 BMP 2-RESIDENTIAL PLUMBING RETROFIT

Minimal (Limited) Kit Delivery Program; this type of kit may include a variety of water saving devices. A limited kit could contain shower flow restrictors, toilet tank displacement bag, and toilet tank leak detection dye tablets together with installation information, leak detection, and repair tips. These kits are intended for use in non-conserving showerheads and toilets in accordance with City and county ordinances.

7.4.1 Implementation or Scheduled Implementation

This measure is not presently implemented. The District will be considering providing Minimal (Limited) Kits in the implementation of such a measure for existing devices. New residential construction already incorporates low flow fixtures.

7.4.2 Methods to Evaluate Effectiveness

The technology for each of the items in the kit has been successfully demonstrated. Shower flow restrictors constrict the flow rate to 3 gpm compared to unrestricted showerheads that have a rated flow of 5 to 8 gpm. Toilet tank displacement bags lessen the amount of water used to flush by holding a small amount of water out of use. Non-conserving toilets fitted with tank displacement bags use 4.8 gallons per flush, versus 5.5 gallons per flush for non-conserving toilet. Toilet leaks are detected using leak detection tablets. The tablets are placed in the toilet tank, turning the water a bright color.

If the water is leaking from the tank to the toilet bowl, the water in the toilet bowl will

turn color.

7.4.3 Estimate of Existing Conservation Savings

This program is cost effective to consumers. The installation of these fixtures will reduce current water and wastewater flows significantly and will have direct economic benefits in deferred sewage treatment facility enlargement and deferred water supply alternatives.

Water and monetary savings offset the cost to the District and the consumer for the purchase and installation of the retrofit kits.

7.5 BMP 3- SYSTEM WATER AUDITS, LEAKS DETECTION AND REPAIR

Water distribution lines are routinely checked and/or tested for leaks; when leaks are found they are promptly repaired.

The distribution system water audit compares the amount of water produced (from wells, surface supplies) by the District to the amount of water used by consumers (as reported by metering readings). The difference is unmetered water. After allowing for authorized unmetered uses such as fire fighting, main flushing, and public use, it can be assumed that the remaining unmetered water is explained by inaccurate meter readings, malfunctioning valves and leakage, and theft.

7.5.1 Implementation or Scheduled Implementation

The District has an ongoing schedule to inspect facilities and periodically calibrate master water meters. The District has already implemented leak detection. Water system audits are generally done at least once a year

7.5.2 Methods to Evaluate Effectiveness

The District annually reviews data records to confirm that unaccounted for water losses stay within an acceptable range of 5% to 7%.

7.6 BMP 4-METERING WITH COMMODITY RATES FOR ALL NEW CONNECTIONS AND RETROFIT OF EXISTING CONNECTIONS

Purveyors are required to place water meters on all new service connections per California State law. The District fully meters all customer sectors.

7.6.1 Implementation or Scheduled Implementation

Prior to the 1980s, the District's method of billing on any land 0.81 acres or more was a fixed rate schedule independent of water use. In 1982 the District changed the billing method to reflect a varying rate structure based on water use.

The District presently replaces old meters under the Meter Exchange Program, which started in the early 1980s. The District continues to change out every meter on ten year intervals. The District plans to continue to conduct its meter calibration and replacement program.

7.6.2 Methods to Evaluate Effectiveness

Use daily District-wide pumping records to evaluate consumption. Utilize customer water bills to analyze water use consumption patterns.

7.7 BMP 5-LARGE LANDSCAPE CONSERVATION PROGRAMS AND INCENTIVES

Presently the City of Beaumont reviews, on a project-by-project basis, the conditions of approval for landscape practices. This approved Landscape Ordinance for New Construction encourages landscaping using low-water-using plants. Irrigation systems with automatic controllers and valves are required on all commercial and industrial developments to control excessive water use. Landscaping practices that require excessive water use will be re-evaluated on a project-by-project basis.

The District also establishes rotating use of schedules for irrigation for those irrigation customers, which reduces the impact of peak demands. The District is encouraging the use of recycled water for these areas.

7.7.1 Implementation or Scheduled Implementation

The City of Beaumont's landscape ordinance has been implemented and in effect since 1995.

7.7.2 Methods to Evaluate Effectiveness

Water usage in new landscaped areas particularly during the typical dry months from May through September may be compared on a "per acre" basis with existing landscaped areas, which were not affected nor required prior to the implementation of the Landscape Ordinance.

Surveys, landscape information training, water bill historical water use and other programs will also assess effectiveness.

7.7.3 Estimate of Existing Conservation Savings

A 20 percent savings in water use through water efficient landscape is possible, compared to traditional landscaping water use for existing commercial, industrial, or governmental landscape.

7.7.4 Evaluation

Because many new developments are currently under construction, a current evaluation of the method has not been determined. However, future assessments should be possible to more accurately estimate the cost savings and water demand reduction of this method.

7.8 BMP 6-HIGH-EFFICIENCY WASHING MACHINE REBATE PROGRAMS

The District and the City of Beaumont presently do not have a rebate program in place for the replacement of old clothes washers.

7.9 BMP 7-PUBLIC INFORMATION PROGRAMS

The District participates and exhibits at public events such as fairs to provide information and promote water conservation. At these events the District provides information on water consumption, costs, and water quality. The District also has available brochures that provide the general public with information on water quality and water conservation.

7.9.1 Implementation or Scheduled Implementation

The public information programs are ongoing and information is provided as needed.

7.10 BMP 8-SCHOOL EDUCATION PROGRAMS

The District presently does not make a special effort to promote water conservation at local schools. District staff is available on an "as requested" basis however. Teachers at the schools may periodically discuss with students, awareness and importance of water conservation.

7.10.1 Implementation or Scheduled Implementation

District staff may consider coordinating with School District staff, events where information packets on water conservation and water savings techniques can be distributed to students.

7.11 BMP 9-CONSERVATION PROGRAMS FOR COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL (CII) ACCOUNTS

The District does not make a special effort to audit water use by commercial and industrial users but does work with local commercial and industrial users to promote water conservation as needed particularly with recycled water use. The District "standard" metering practice for large commercial/industrial customers is to install multiple, parallel small diameter (2-in) meters. These meters are more accurate at low flows than larger meters and provide an opportunity to monitor consumption. Malfunctioning meters are easily detected. If any of the meters read "high" or "low" they are replaced. The District also installs "Performance Meters" on all new fire services to meter fire suppression water use. The District works with existing and new commercial and industrial users to determine if recycled water can be incorporated and used in their operation such as a concrete ready mix business.

7.11.1 Implementation or Scheduled Implementation

The District will continue to implement this measure on an as need basis.

7.11.2 Methods to Evaluate Effectiveness

Water bills show the water customer the amount of water used in previous billing period. All commercial and industrial users are provided with historical usage on their bill. This allows customers to compare their water usage with the same period of the previous year and to monitor their water usage over time. The District is available to assist customers, if requested, to review methods to improve water use effectiveness.

7.12 BMP 10-WHOLESALE AGENCY ASSISTANCE PROGRAMS

The District is not a wholesale water supplier and therefore does not provide financial assistance or resources to advance water conservation efforts to retail water suppliers.

7.13 BMP 11-CONSERVATION PRICING

The District has eliminated a reduced water rate for high agricultural water users. These users pay the prevailing rate as set by the District for the volume of water used.

7.13.1 Implementation or Scheduled Implementation

The District will continue to review their rate structure to eliminate non-conserving pricing structures.

7.13.2 Methods to Evaluate Effectiveness

Review billing records and pricing structures.

7.14 BMP 12-CONSERVATION COORDINATOR

The District presently does not have a designated conservation coordinator.

7.14.1 Implementation or Scheduled Implementation

The District will review staff needs and make recommendation to the Board to possibly implement this measure. The District is a small agency and funding a full time water conservation coordinator would have significant financial impacts. The District will investigate opportunities to incorporate water conservation "duties" within the existing staffing or if this can be accomplished regionally through the STWMA.

7.15 BMP 13-WATER WASTE PROHIBITION

Section 9.6 of the District's Rules Governing Water Service states the following:

> It is a violation of these Regulations:
>
> 3) To cause or permit the waste of water from the water system or to maintain or cause or permit to be maintained any leaky outlets, apparatus or plumbing fixtures through which water is permitted to waste;
>
> 4) To use water for washing sidewalks and driveways in a manner that prevents the usual and customary use of public streets and sidewalks by others;
>
> 5) To permit water sprinklers to spray onto sidewalks and streets or to permit water to run from the consumer's property onto public sidewalks and streets to cause risk and/or damage to the public or to public and private property;

Section 15 of the District's Rules Governing Water Service states the following:

> No person, firm or corporation shall use, deliver, or apply waters received from this District in any manner that causes the loss, waste, or the application of water for unbeneficial purposes. Within the meaning of this Regulation, any waters that are allowed to escape, flow, and run into areas which do not make reasonable beneficial use of such waters, including but not limited to streets, gutters, drains, channels, and uncultivated lands, shall be presumed to be wasted contrary to the prohibitions of these Rules and Regulations.

The Regulations for Water Service have a series of warnings/penalties. The first notice is a written warning; the second offense results in a doubling of the water charges until full compliance is attained. After the third offense, the District can terminate water service to the customer.

7.15.1 Implementation or Scheduled Implementation

The District already has the ordinance regulation in place.

7.16 BMP 14-RESIDENTIAL ULTRA-LOW-FLUSH TOILETS (ULFT) REPLACEMENT PROGRAMS

The California Code of Regulations, Title 24, regulated by Part 5 of the California Plumbing Code, which is a division of the California Building Standards, requires ULFTs in all new construction starting January 1, 1994. The District does not presently have a program for replacement or a rebate program for replacement of old pre-1994 toilets.

7.16.1 Implementation or Scheduled Implementation

The City of Beaumont requires all new construction and remodel projects to install ULFTs.

7.17 OPPORTUNITIES FOR DEVELOPMENT OF DESALINATED WATER

At the present time and for the foreseeable future there are few opportunities for the development and use of desalinated water. The groundwater in the area has very low TDS and providing desalination systems would not be needed. However, as part of an agreement between the City of Beaumont (and other dischargers) with the Santa Ana Regional Water Quality Board to maximize the use of recycled water, the City and other discharges have agreed to install desalination systems on either the drinking water side or the treated wastewater side in exchange for an increase in the Basin Water Quality Objectives. This was done in Resolution R8-2004-001 of the Santa Ana Regional Water Quality Control Board. The Beaumont Basin Watermaster's initial estimate is that this will not be needed for decades.

One of the impediments to desalination is brine disposal. The Santa Ana Regional Interceptor (SARI) will need to be extended from the Riverside/San Bernardino area to Beaumont. This will require a significant capital investment and may require increasing the overall capacity of the existing pipeline.

The best current opportunities for the District to be involved with desalination is through a joint project with another agency such as the Santa Ana Watershed Project Authority (SAWPA), the Chino Desalting Authority, or others. In exchange for District financial participation, the District would receive an equivalent amount of the agency's State Project Water. BCVWD has been collecting a "new water source" fee from all new development for several years now to finance such an endeavor. It is possible this could be extended to participation in a sea water desalination project on the same exchange terms.

7.18 DISTRICT'S LEGAL AUTHORITY

The District was formed originally as the Beaumont Irrigation District on March 17, 1919 under the statutes of 1897, page 254 as amended, know as "an Act to provide for organization and government of irrigation districts….[etc]." The District currently exists and operates under the provisions and authority of the Irrigation District Law, California Water Code section 20500, et seq. The District has the legal authority to impose regulations relative to water use and adopt rates as appropriate for water service.

SECTION 8

WATER RECYCLING

8.1 WASTEWATER SYSTEM DESCRIPTION

> 10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:
>
> 10633 (a) A description of the wastewater collection and treatment systems in the supplier's service area…

The City of Beaumont's WWTP is within the service area of the District. The City of Beaumont is responsible for the collection and treatment of municipal wastewater. Although the District is not responsible for wastewater collection and treatment, the District is coordinating with the City of Beaumont on recycle water projects for reuse of treated wastewater. The present capacity of the plant is approximately 2 million gallons per day (mgd). The City of Beaumont is presently making modifications and enhancements to the plant to increase the plant capacity to 4 mgd. The ultimate capacity of the plant will be approximately 8 mgd. It is not known at this time when the next major expansion to the plant is scheduled. It is planned that the community of Cherry Valley will be sewered to the City of Beaumont's treatment plant through BCVWD's latent wastewater power. This will increase the flow to the City of Beaumont's treatment plant by about 1 mgd by the year 2030.

Raw wastewater from the City of Beaumont enters the plant and flows through a mechanical screening and flow metering facility before flowing to the influent pumping station. From there the wastewater is pumped to a pair of combination flow equalization/aeration basins for secondary treatment. The effluent from the equalization/aeration basins flows to two secondary clarifiers where the activated sludge is separated and returned to the equalization/aeration basins. The plant will incorporate a centrifuge system for dewatering in their current modifications. The clarified secondary effluent flows to two shallow bed, traveling bridge filters then through an ultraviolet light facility for final disinfection. The disinfected effluent then flows through a metering flume and down a stair-step cascade aeration channel to Coopers Creek, which is tributary to San Timoteo Creek. It should be noted that the outfall to Coopers Creek is outside and not tributary to the BSU. The plant currently meets Title 22 requirements for unrestricted use and will provide tertiary treated effluent for water recycling. Additions will be made at the treatment facility for recycled water pumping and for chlorine application to maintain water quality within the recycled water distribution system.

8.2 WASTEWATER GENERATION, COLLECTION, AND TREATMENT

> 10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:
>
> 10633 (a) A […] quantification of the amount of wastewater collected and treated…

Table 8-1 summarizes the estimated wastewater generation and collection within the existing service area of the District and estimated flows through 2030 based on known developments. Wastewater generation includes all flows received by the City of Beaumont's WWTP and estimated flow from Cherry Valley .

Table 8-1
Wastewater Generation and Collection

	2000	2005	2010	2015	2020	2025	2030
Wastewater collected and treated at City of Beaumont WWTP from the City of Beaumont, mgd	1.2	1.65	5.37	7.37	7.71	7.88	7.94
Wastewater collected from Cherry Valley and treated at the City of Beaumont WWTP, mgd		-	-	0.56	.76	.86	.97
Total Wastewater Flow, mgd	1.2	1.65	5.37	7.93	8.47	8.74	8.91
Total Wastewater Flow, acre-ft/yr		1848	6099	8885	9561	9901	9983
Wastewater Flow for Environmental Mitigation, acre-ft/yr		300	300	300	300	300	300
Wastewater Flow Available for Recycled based on 95 utilization		1471	5509	8156	8798	9121	9199

8.2.1 Overview of the Recycled Water Plan

The City of Beaumont has previously expanded and upgraded its WWTP to a full reclamation facility. This is in response to the California Regional Water Quality Control Board (RWQCB), Santa Ana River Region to upgrade the level of treatment to allow continued discharge to Cooper's Creek, a tributary of San Timoteo Creek. In lieu of discharging effluent to the creek, the City of Beaumont and District, through the two party Cooperative Agreement, have agreed to implement a water recycling project, since the effluent limits for discharge to the creek currently are equivalent to that required for water recycling.

The City of Beaumont will operate the treatment facility and deliver treated water to the District for recycling. The District will own and operate the recycled water pumping stations, storage reservoirs and distribution piping. The District will then enter into agreements with various users, such as the City of Beaumont, Parks and Recreation District, Caltrans, Golf Courses, etc. for providing recycled water. The District will be

responsible for metering and revenue collection as well as overall recycled water pumping, storage and distribution system operation and maintenance.

The District intends to serve recycled water to the full extent possible for non-potable uses and as permitted by law. This would make potable water, now used for irrigation, available for new development. As new development occurs, the new projects would include appropriate piping systems to permit the use of recycled water for irrigation of street medians, greenbelts, schools, parks and common areas. This concept then envisions limiting the use of potable quality water to potable water purposes to the extent practical. Surplus recycled water will be available during certain times of the year when normal irrigation demands are reduced. During these times, the surplus will be piped to spreading basins for surface spreading of recycled water for recharge to the BSU.

The recycled water system will be developed in phases to match both demand for recycled water and the availability of treated effluent to be recycled. Currently about 18 to 20 miles of recycled water piping are in place.

8.3 WASTEWATER DISPOSAL AND RECYCLED WATER USES

> 10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:
>
> 10633 (a) A description of the […] methods of wastewater disposal.
>
> 10633 (b) A description of the recycled water currently being used in the supplier's service area, including but not limited to, the type, place and quantity of use.
>
> 10633 (c) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.
>
> 10633 (d) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years.

8.3.1 History of Water Recycling in the Service Area

The District has considered the use of recycled water to supplement the water supply for a number of years. As early as 1987 the District began discussing water recycling in earnest with the City of Beaumont and the Pass Agency.

In June of 1989 the District prepared an internal memorandum on the potential for using recycled water in the Pass area. The report discussed the installation and operation of a conceptual project, which included treatment facilities serving the cities of Banning and Beaumont. Included in this plan were conceptual alignments for recycled water distribution and storage facilities. The concept involved the formation of a Joint Powers Reclamation Agency with each city operating its own treatment facilities. The effluent would be provided to the JPA for distribution. Surplus recycled water was proposed to be percolated into the ground for recharge.

In August of 1989 the cities of Beaumont and Banning along with the District sent letters to the Pass Agency to have the Pass Agency take the lead on the conceptual project.

Since that time, the District, the City of Beaumont and several large developers took the lead in developing a conceptual regional wastewater collection and reclamation study. The District's Engineer completed the study in 1993. The plan envisioned a regional reclamation facility in San Timoteo Canyon in the vicinity of San Timoteo Canyon and Singleton Roads. The plan also envisioned continued use of the City of Beaumont's WWTP as a satellite reclamation plant. The current plan, however, is to keep the City of Beaumont's WWTP in operation supplying recycled water up to at least 8 mgd (or 9 mgd including the Cherry Valley flow.) Flow will not reach this level until well into the future.

With increasing interest in development in the City of Beaumont, the District and the City of Beaumont entered into a cooperative agreement that funded a new recycled water master plan from Community Facilities District Bonds. This work was completed as part of the 1995 Master Plan.

8.3.2 Type and Place of Recycled Water Currently Being Used

At the present time treated wastewater is not being used to offset potable water demands. Pipelines are being installed as development occurs in accordance with the District's Recycled Water Master Plan, which is presently being updated. Certain facilities need to be in place such as a booster station, chlorination facility, and water storage at the City of Beaumont's WWTP in addition to pipelines before water recycling can be begin. The chlorination facility is not for disinfection, but to provide a residual disinfectant in the recycled water to maintain water quality in the recycled water distribution system.

8.3.3 Projections of Recycled Water Use in 2002 UWMP Update

The District's UWMP 2002 Update included potential recycled water demands as follows:

2002 UWMP Recycled Water Demand Projections

2005	0.9 mgd	1000 acre-ft/yr
2010	2.9 mgd	3250 acre-ft/yr
2015	4.9 mgd	5500 acre-ft/yr
2020	5.3 mgd	5900 acre-ft/yr
2025	5.4 mgd	6050 acre-ft/yr

These quantities have increased significantly in this 2005 UWMP update

2005 UWMP Recycled Water Demand Projections

2005	1.92 mgd	2153 acre-ft/yr
2010	5.72 mgd	6410 acre-ft/yr
2015	6.10 mgd	6828 acre-ft/yr
2020	6.27 mgd	7028 acre-ft/yr
2025	6.27 mgd	7028 acre-ft/yr
2030	6.27 mgd	7028 acre-ft/yr

Note that the above projections for the 2005 Update do not include the amount of recycled water which is recharged. The District's philosophy of operation is to utilize the recycled water first for irrigation and then if there is any unused recycled water available, it shall be used for groundwater recharge. This was the basis for Table 2.8.

When the 2002 UWMP Update was being prepared there were only a few developments, e.g., Three Rings Ranch, that installed recycled water mains and plumbed their system for recycled water. As of the December 2005, the District has between 18 to 20 miles of recycled water transmission main in place. This does not include the distribution mains installed by developers to serve parks and playgrounds etc.

8.3.4 Recycled Water Quantity

Successful recycled water systems require the recycled water to be available not only in sufficient quantities, on demand, but also be of the highest quality possible.

With respect to quantity, the demand must not outpace the supply and sufficient storage must be provided to match hourly demand with supply.

Currently there is about 1.1.65 to 1.8 mgd of wastewater treated at the City of Beaumont's WWTP. This water, once treated, is discharged into Coopers Creek, which is tributary to San Timoteo Creek. Because it provides a portion of the streamflow to San Timoteo Creek, the RWQCB has indicated that some portion of the flow should continue to be discharged to the creek. For purposes of this plan this is assumed to be 20 percent of the current discharge or about 0.25 mgd. Based on this there is currently about 1.25 to 1.55 mgd available for recycling. Other alternative mitigation measures may be implemented such that the total present flow from the wastewater treatment plant would be available for recycling. Any mitigation measures would require approval by the RWQCB.

The recycled water will be supplemented by untreated State Project Water which will be blended with the recycled water at the District's groundwater recharge facility.

8.3.5 Recycled Water Quality

Current users of potable water recognize the value of water quality; changes from potable water to recycled water are sometimes met with resistance, primarily due to the unknowns. These unknowns relate to both quality and quantity. Golf course

superintendents are concerned about the mineral water quality and its impact on very sensitive grasses. Nursery owners are concerned about the impact of the water on sensitive ornamentals. School site administrators want to know how the play areas will react to recycled water.

Water quality parameters of interest to recycled water users are typically:

- Mineral content
- Metals
- Organics and pesticides
- Microbiological content

8.3.5.1 Mineral Content

The mineral content is extremely important to landscape irrigation, nursery users, irrigators and golf course superintendents. From an irrigation standpoint the important parameters are the total dissolved solids (TDS) concentration, the concentration of specific ions such as sodium, chloride, and boron; and the impact the use of the water will have on the soil structure as measured by the Sodium Adsorption Ratio (SAR) or the Modified SAR.

The mineral content is also of importance when groundwater recharge is considered. If the recycled water has excessive mineral content, the quality of the groundwater will eventually deteriorate. In groundwater recharge projects, the quality of the recharge water must be of such quality, that it will not cause the groundwater basin water quality objectives to be exceeded. Basin water quality objectives are established by the RWQCB and are published in the Basin Plan.

Table 8-2 presents a summary of the mineral quality characteristics of the wastewater currently being discharged by the City of Beaumont's WWTP between 1995 and 2001. The quality today (2005) is anticipated to be about the same since the source water quality has not changed significantly.

Table 8-2
Recycled Water Mineral Quality (1995-2001)

		RANGE		
PARAMETER	**UNITS**	**MIN**	**MAX**	**AVERAGE**
Total Hardness as CaCO3	mg/L	150	200	177
Calcium (Ca)	mg/L	39	53	46
Magnesium (Mg)	mg/L	12	18	15
Sodium (Na)	mg/L	57	82	68
Potassium (K)	mg/L	11	14	12
Ammonium Nitrogen (NH4-N)	mg/L	ND	8	0.62
Total Alkalinity as CaCO3	mg/L	160	250	202
Hydroxide (OH)	mg/L	ND	<3	0
Carbonate (CO3)	mg/L	ND	3	2
Bicarbonate (HCO3)	mg/L	140	310	247
Sulfate (SO4)	mg/L	36	67	46
Chloride (Cl)	mg/L	30	65	49
Nitrate Nitrogen (NO3-N)	mg/L	<1	20	7
Fluoride (F)	mg/L	0.4	2.0	0.66
Cyanide (CN)	mg/L	ND	0.02	<0.01
Total Phosphorus	mg/L	0.1	4.6	2.21
Nitrite Nitrogen (NO2-N)	mg/L	ND	0.8	0.18
Inorganic Nitrogen	mg/L	1	31	9
Total Dissolved Solids (TDS)	mg/L	360	510	428
Total Organic Carbon (TOC)	mg/L	3	24	6
Sodium Adsorption Ratio	meq/L	2.0	2.5	2.2

Overall the mineral water quality of the recycled water is excellent. The TDS ranges from 360 to 510 mg/L with an average of 428 mg/L. The TDS of the District supplied groundwater ranges from 220 to 320 mg/L and averages about 260 mg/L. The water quality varies depending on the source i.e. Edgar Canyon supply or the BSU. Water from Edgar Canyon has slightly lower mineral concentration than water pumped from the BSU. The recycled water concentration shows an increase of 168 mg/L from the supply water. This is lower than that typically experienced and is reflective of the good quality water source and the predominately residential character of the wastewater.

The concentration of sulfates, chlorides and sodium in the recycled water, of concern to irrigators, averages 46, 49 and 68 mg/L, respectively. In the District supplied groundwater these concentrations average 30, 10 and 20 mg/L, respectively. The recycled water concentrations show an increase of 16, 39, and 48 mg/L from the supply water. This is typical.

The SAR for the reclaimed water averages 2.2. SAR values less than 3 present a low risk

of decreasing soil permeability with long-term use of the water.

This water can be used for irrigation without any fear of damage to grasses or landscaping.

The recycled water contains a total phosphorus (as P) of 2.2 mg/L and total inorganic nitrogen (as N) of 9 mg/L. This translates into a fertilizer equivalent of 6 lb. of P/acre/foot of water applied and 25 lb. of N/acre/foot of water applied. On the basis that 5 feet of water will be applied per year per acre, the recycled water will supply about 30 lb. of P/acre/year and 125 lb. of N/acre/year. Use of the recycled water for irrigation will reduce the need to purchase and apply chemical fertilizers.

8.3.5.2 Metals

Table 8-3 presents the quality of the recycled water in terms of metals. Metals are present in only trace amounts and all comply with the maximum contaminant levels (MCLs) set for potable water.

The boron concentration ranges from <0.1 to 0.3 mg/L with an average of 0.22 mg/L. Boron is of concern in concentrations above about 0.75 mg/L.

8.3.5.3 Organics and Pesticides

Organics and pesticides are essentially below detection levels except for chloroform. Chloroform is a disinfection by-product formed during the disinfection process using chlorine and is a trihalomethane (THM). The WWTP uses ultraviolet disinfection so chloroform levels should be minimal. The chloroform concentration in recent samples was below 30 µg/L. The drinking water MCL for total trihalomethanes is 80 µg/L and hence the concentration in the recycled water would not appear to be of concern.

The total organic carbon (TOC) in the recycled water ranges from 3 to 24 mg/L with an average value of 6 mg/L. TOC is an important consideration in groundwater recharge involving recycled water because it is reflective of refractory organic material, which was not removed in the treatment process. This level of TOC may be an issue in groundwater recharge and some additional effluent “polishing” may be required at some point in time.

8.3.5.4 Microbiological Content

The regulations for recycled water use are based on producing virus and pathogen free water. The upgraded and expanded WWTP will provide recycled water that meets these objectives.

Table 8-3
Recycled Water Metal Concentrations (1995-2001)

		RANGE		
PARAMETER	**UNITS**	**MIN**	**MAX**	**AVERAGE**
Antimony (Sb)	µg/L	<1	2	<1
Arsenic (As)	µg/L	<1	5	1
Barium (Ba)	µg/L	<20	24	<20
Beryllium (Be)	µg/L	<10	<10	<10
Boron (B)	mg/L	<0.1	0.3	0.22
Cadmium (Cd)	µg/L	<1	1	<1
Total Chromium (Cr)	µg/L	<10	10	<10
Cobalt (Co)	µg/L	<10	<10	<10
Copper (Cu)	µg/L	<10	15	<10
Iron (Fe)	µg/L	<20	110	20
Lead (Pb)	µg/L	<1	13	1
Manganese (Mn)	µg/L	<10	10	<10
Mercury (Hg)	µg/L	<0.5	0.5	<0.5
Nickel (Ni)	µg/L	<20	20	<20
Selenium (Se)	µg/L	<1	7	<1
Silver (Ag)	µg/L	<10	10	<10
Thallium (Tl)	µg/L	<5	200	<5
Zinc (Zn)	µg/L	35	150	60

8.3.5.5 Projected Water Quality

When the newly upgraded WWTP is on-line, it is expected that most of the mineral water quality constituents will not vary appreciably from those in Table 8-2. However, there could be a change in some of the constituents if treated SWP water is used in the service area for potable water.

SWP water contains higher concentrations of TDS, chlorides and sulfates than does the local groundwater. Table 8-4 presents data on the variation of these constituents in the SWP water from Silverwood Reservoir, the water source for the Pass Agency.

The variations of water quality are substantial and depend on the water supply conditions in Northern California. Drought conditions result in more intrusion of poor quality water into the Sacramento-San Joaquin River Delta, the source of the SWP exports. The expected value shown in Table 8-5 is not an average but rather is reflective of conditions believed to be representative in the future.

Table 8-4
State Water Project Water Quality

Parameter	Units	Range	Expected
TDS	mg/L	100 - 400	350
Chloride	mg/L	10 - 150	120
Sulfate	mg/L	30 - 120	80

If SWP water is used in the District water supply system, the concentrations of TDS, chlorides and sulfates in the recycled water will increase slightly; the amount of increase depends on the proportion of SWP water used. Most likely the water supply for the service area in the future will consist of a blend of local groundwater and SWP water, so the anticipated concentrations of TDS, chlorides and sulfates in the recycled water will be 490, 115 and 70 mg/L, respectively versus the 428, 49, and 46 mg/l respectively, currently experienced in the City of Beaumont's WWTP effluent.

8.3.6 Potential Uses of Recycled Water

8.3.6.1 Irrigation and Other Direct Uses

At the present time the only potential recycled water uses envisioned are those related to irrigation of freeway medians, golf courses, cemeteries, parks, playgrounds and schoolyards. Recycled water used for those purposes shall be disinfected tertiary recycled water. (Strictly speaking the irrigation of freeway medians and cemeteries only needs to be disinfected secondary effluent. Treating only a portion of the effluent to meet those reduced requirements is impractical and furthermore would require a separate piping system to distribute the water to those users.)

In the future the recycled water system could be expanded to irrigate cherry and other fruit orchards. The proposed requirement for this use is disinfected tertiary recycled water also. It is anticipated that future demand for irrigation of fruit trees will diminish as the orchards are replaced with other land uses.

The City of Beaumont's WWTP already produces effluent, which meets Title 22 requirements for unrestricted use. There are, however, a number of use area requirements and facility design requirements. These requirements assume disinfected tertiary recycled water is used.

1. No irrigation shall take place within 50 feet of any domestic, including municipal, water supply well and no impoundment shall occur within 100 feet of any domestic well.
2. Any irrigation runoff shall be confined to the use area and shall not enter a dwelling, outdoor eating area or a food handling facility. Drinking water fountains shall be protected against contact with recycled water spray, mist or runoff.

Irrigation of parks, playgrounds and schoolyards usually requires irrigation during the nighttime hours.

3. Recycled water use areas shall be posted with signs.
4. There shall be no physical connection between any recycled water system and a potable water system. Only an air gap separation is permitted on back-up supplies.
5. The recycled water system shall not have any hose bibs. Only quick couplers different from those used on the potable water system are permitted.
6. A reduced pressure principle backflow prevention device shall be placed on the potable water supply connection to each reuse area.
7. A detailed recycled water use report shall be prepared. This report shall contain
    - A detailed description of the use site including the person(s) responsible for operation and maintenance of the system,
    - Piping layout including backflow prevention devices, and
    - Methods used by the recycled water supplier to ensure no cross connections.

8.3.6.2 Groundwater Recharge by Surface Spreading

The following requirements, excerpted from the "Draft, dated April 23, 2001, Groundwater Recharge Reuse Regulations," affect the design and operation of a proposed recycled water project.

1. All reclaimed water shall be from a wastewater collection system operated under a comprehensive industrial pretreatment and pollutant source control program.

The City of Beaumont will have this in place, as it is part of the overall wastewater discharge permit.

2. Requires that the recycled water be oxidized, filtered and disinfected.

Essentially this is a filtered and disinfected secondary effluent. This is basically the same quality required for direct discharge to San Timoteo Creek. The current level of treatment meets this requirement.

Some polishing supplementary refractory organics removal may be needed.

3. The average quantity of recycled water in each aquifer shall be specified by the Department of Health Services. The amount will be a function of the TOC in the recycled water.
4. Recycled water shall be retained underground a minimum of 6 months prior to being withdrawn at a domestic (municipal) water supply well.
5. The minimum horizontal separation between a surface spreading area and a domestic (municipal) water supply well shall be 500 feet.
6. A detailed engineering report shall be prepared and contain the following information as a minimum:
    - A plan of the treatment, storage, transmission, spreading and monitoring facilities,
    - A project description,

- A detailed hydrogeologic study to address the aquifer travel time, percent recycled water intercepted by domestic wells, water quality impacts, etc.,
- A description of the operation and maintenance personnel, their qualifications, experience and responsibilities,
- A description of project operation including a contingency plan to preclude the recharge of water when conditions or quality does not meet requirements,
- A determination of anticipated TOC and total nitrogen levels, and
- A detailed mound monitoring plan.

Based on the requirements established above, there does not appear to be any reason why the surface spreading of recycled water would not be permitted.

8.3.7 Potential Recycled Water Demands

Table 8-5 summarizes the potential recycled water users in 5-year increments through 2025. To serve all of these users would involve a very extensive distribution and storage network. It is envisioned that the recycled water system could serve the entire area eventually.

Table 8-5
Existing and Projected Recycled Water Demands (2005 – 2030)
Acre-ft/yr

Year	2005	2010	2015	2020	2025	2030
Existing Potable Water Users converted to recycled water	0	1700	2153	2153	2153	2153
Future Recycled Water Users	0	1107	1525	1725	1725	1725
Recycled Water Supplied to Overlying Parties	0	3150	3150	3150	3150	3150
Recycled Water Recharge	0	0	1328	1678	1978	2171
DEMAND TOTAL	**0**	**5957**	**8156**	**8706**	**9006**	**9199**
AVAILABLE	**1471**	**5509**	**8156**	**8706**	**9006**	**9199**

Note: in 2010 there is a shortfall in recycled water supply that will need to be made up with imported State Project Water.

Table 8-5 also summarizes the comparison of recycled water available from the City of Beaumont's WWTP and the projected recycled water demands through 2030.

8.4 CITY OF BEAUMONT RECYCLED WATER ORDINANCES

The City of Beaumont has adopted several ordinances regulating the use of recycled water. The City of Beaumont, in conjunction with the District, has adopted polices such that when recycled water becomes available, recycled water will be used for non-potable uses such as irrigation of landscape medians, cemeteries, golf courses, and parks. The City of Beaumont also has ordinances that adopt the District's UWMP and the water conservation measures and procedures stated in the UWMP. The City of Beaumont's ordinances applicable to recycled water are attached in Appendices L, M, and N.